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DEREGULATION'S EFFECT ON LABOR IN THE TRUCKING INDUSTRY

by

Michael Dougherty

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Deregulation's Effect on Labor in the Trucking Industry

by

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requirements for the degree of

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ABSTRACT

After forty-five years of considerable government regulation in the trucking industry, Congress passed the Motor Carrier Act of 1980. The Motor Carrier Act was a major step toward deregulation of the trucking industry. Provisions in the act allowed for greater competition and exposure to market forces. From its beginning, the Motor Carrier Act has been extremely controversial. Opponents of the act have claimed that deregulation has placed considerable strains on labor in the industry. This thesis will examine if deregulation has had an effect on employment and wages in the trucking industry.

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I. INTRODUCTION

A. BACKGROUND

1. Era of Regulation

With the passing of the Motor Carrier Act of 1935, the trucking industry entered the realm of government regulation. The act placed the young and expanding motor carrier industry under the regulatory jurisdiction of the Interstate Commerce Commission (ICC). The act contained a comprehensive set of economic regulations that were designed to promote the inherent advantages of the trucking industry. Congress never defined the advantages, but felt that different cost and service characteristics were peculiar to the motor carrier industry. [Ref. 1:p. 314]

As a result of the Motor Carrier Act of 1935, the ICC was given authority to regulate entry into the industry and to ensure adequate service and reasonable rates. To maintain a stable industry, the ICC placed barriers to entry. Prospective carriers were required to apply for a certificate of public convenience and necessity to operate as a common carrier. The ICC monitored the requests and strictly controlled entry into the industry. In 1976, the ICC only granted permits to 69.8 percent of total applications. [Ref. 2:p. 7]

The Motor Carrier Act of 1935 also gave the ICC the authority to enact the rule of rate making and minimum rate control in the industry. The rule of rate making, which allowed the ICC to establish rates, was conceived to ensure motor carriers received a fair return on

their investment. Minimum rate control gave the ICC the power to set minimum rates in order to prevent competition from driving rates too low [Ref. 1:p. 310]. Through rate making and minimum rate control, the ICC was able to firmly limit price competition in the industry. [Ref. 3:p. 33]

The deregulation experience achieved many successes in its early years and resulted in a deepening legislative interest in deregulation. After only five years, the Motor Carrier Act of 1935 was followed by an expanded Transportation Act of 1940. The Transportation Act pertained to all modes of transportation regulated by the ICC and included a statement of national policy. The statement, written by Congress, placed a protective dome around trucking and other modes of transportation. The statement read:

> It is hereby declared to be the national transportation policy of the Congress to provide for fair and impartial regulation of all modes of transportation subject to the provisions of the Act, so administered to recognize and preserve the inherent advantages of each; to promote safe, adequate, economical and efficient service and foster sound economic conditions in transportation and among the several carriers; to encourage the establishment and maintenance of reasonable charges for transportation services, without unjust discrimination, undue preferences or advantages, or unfair and destructive competitive practices, to cooperate with the several States and the duly authorized officials thereof; and to encourage fair wages and equitable working conditions; all to the end of developing, coordinating and preserving a national transportation system. [Ref. 1:p. 314]

Throughout the years, regulation acted as a protective buffer for labor. Barriers to entry and restrictions on independent rate making protected labor from normal market forces. Isolation from market forces enhanced the strength and ability to organize by the

International Brotherhood of Teamsters (IBT). Unionization of the trucking industry was encouraged by the statement of national policy and was extremely successful. In 1978, 84.3 percent of regular route common carriers were unionized. [Ref. 2:p. 13]

Rose, in her study of union wage rents in the trucking industry, states,

> Entry restrictions virtually eliminated the threat of *de nova* nonunion entry, and curtailed the potential expansion of existing nonunion carriers into new markets. Uniform rates reduced the ability of nonunion carriers to attract business away from union carriers by limiting price competition. [Ref. 4:p. 5]

As a result of unionization, the IBT was able to drive up the price of labor. Workers in the trucking industry were not exposed to any real threat of competitive entry or aggressive pricing behavior [Ref. 4:p. 6].

2. The Motor Carrier Act of 1980

In late 1978, the ICC started to concentrate on reforms in the trucking industry. The transformation of regulations which focused on less-restrictive policies allowed a greater percent of new firms to enter the industry. Enhanced price competition and expansion of existing firms characterized the changing face of regulation. [Ref. 4:p. 4]

Regulatory reform of the motor carrier industry was on the horizon. Congress had already passed regulatory reform acts for the airlines and the railroads. The movement toward deregulation was destined to spill over to the trucking industry. A controversial subject, deregulation was opposed by many regulated members of the industry.

The opponents of deregulation stipulated that regulation allowed for stability and reasonable competition. The opponents emphasized that these important characteristics of regulation provided the public with good service at reasonable costs [Ref. 1:p. 331]. Advocates for deregulation stressed that increased competition would benefit both the industry and the shipping public. Supporters of the act argued that the regulatory process resulted in artificially high rates. Critics claimed that collective rate making resulted in rates that were higher than those necessary to cover the costs of more efficient carriers. [Ref. 3:p. 13]

In their arguments against deregulation, the IBT stated that predatory pricing and rate cutting would result from increased competition. The IBT predicted that "cut-throat competition" would result in carrier failures and cause wholesale unemployment and underemployment for union members in the industry. [Ref. 5:p. 2]

The changing attitudes of the ICC and Congress were finalized by the Motor Carrier Act (MCA) of 1980. The MCA was an act directed toward deregulation of the trucking industry. The basic legislation of the MCA established a new federal policy to promote a more competitive motor carrier industry. Price flexibility, rate freedoms, and ease of entry were main points of the MCA [Ref. 1:p. 332]. The new federal policy stated that it will "enable efficient and well managed carriers to earn adequate profits, attract capital, *and maintain fair wages and working conditions.*" [Ref. 6:p. 3] As a result of the MCA, the trucking

industry was no longer protected but was subjected to greater exposure to market forces.

3. The Implications and Arguments of Deregulation

Since the MCA, an influx of new carriers have entered the market, resulting in increased competition in trucking rates. In 1981, the first full year of deregulation, 96.7 percent of the applications for entry into the industry were approved by the ICC [Ref. 2:p. 7]. The ICC permitted regulated motor carriers to increase from 16,000 in 1976 to more than 22,000 in 1983 [Ref. 7:p. 5]. Many of these new carriers are relatively small, nonunionized firms and owner-operators. In many cases, the nonunionized personnel work at lower wages than union personnel. In 1984, union workers received an average wage that was 41 percent greater than nonunion workers [Ref. 4:p. 19]. Benefits enjoyed by union members, including health and welfare, pension, sick leave, and vacation, are also unavailable to many employees of nonunion firms. [Ref. 5:p. 4]

In addition to lower labor costs, the nonunion carriers are faced with less restrictive work rules [Ref. 7:p. 5]. Nonunion carriers were able to increase their market share by passing their lower costs to the shipper. The increased market share of the new carriers naturally replaced the share held by existing unionized carriers. The reduced market share exerted tremendous pressures on existing carriers.

In 1985, carriers testified before the California Public Utilities Commission that they were frequently hauling for rates that were

non-compensable. Shippers also reported that they would demand the lowest rates from carriers, even if the lowest rate was non-compensatory [Ref. 5:p. 3]. As one carrier stated, "in the game of supply and demand, the shippers are having a field day." [Ref. 8:p. 14C]

In the wake of deregulation, the IBT testified before the U.S. Senate Surface Transportation Subcommittee that 60 Class I (operating revenues of $5 million and greater) and Class II (operating revenues of $1 to $5 million) carriers of general freight terminated operations between July 1, 1980 and August 26, 1985. The IBT estimated that between 40,000 and 50,000 workers permanently lost their jobs as a result of carrier failures. [Ref. 6:p. 4]

On April 1, 1984, the IBT, using a 95-percent confidence level, statistically estimated that the layoff rate among union members in the regulated general trucking industry was between 15.97 percent and 22.51 percent [Ref. 9:p. 80]. The IBT also claimed that trucking industry employee wages fell 26 percent in real terms, compared to a 15-percent rise for wages incomparable industries [Ref. 10:p. 1]. Rose [Ref. 4] also discovered a substantial decline in union wages after deregulation. Rose calculated that union premia over nonunion wages fell from 50 percent to 30 percent. The change in wages corresponded to an annual earning loss of $3,860, or 14 percent for a represented union driver in 1983-1985. [Ref. 4:p. 2]

Advocates for deregulation claimed that carrier failures and layoffs in the trucking industry were due to the recession of the early 1980s [Ref. 5:p. 4]. When economic conditions improved and carrier

failures continued, supporters of deregulation suggested that previous excesses developed during regulation were being corrected. Alfred E. Kahn, a noted and forceful opponent of regulation, stated,

> the extent to which all parties are having trouble is the extent to which deregulation is working. Bankruptcy is a sign not that deregulation has been a failure, but that competition is doing what it is supposed to do. [Ref. 9:p. 4]

Supporters believed deregulation has forced carriers to be more cost conscious and efficient in their operations. Tom Weidb, President of the Florida Trucking Association, stated in *The Journal of Commerce* that,

> sound carriers have adapted to deregulation primarily by adjusting their operations to lower profits than they enjoyed in the 1970's. [Ref. 8:p. 14C]

The debate over deregulation and its effect on labor is continuing and has received substantial attention from state and national agencies. Advocates for and opponents against deregulation have been performing studies and gathering data to argue their views. The problem is far from being resolved.

B. OBJECTIVES

1. Deregulation or Economic Forces

The objective of this study is to determine if deregulation has had an effect on labor in the trucking industry. Although there has been a noticeable change in the employment and wages in the motor carrier industry, no recent attempt has been made to determine if the changes were a result of deregulation or existing economic conditions.

In 1982, the United States General Accounting Office performed a study on regulatory reform's effect on unemployment in the trucking industry. In the report, the GAO compared the unemployment rates in the trucking industry with unemployment rates of the manufacturing (durable goods) and the construction industries. The GAO chose these two industries because "their economic activities affect trucking." [Ref. 2:p. 1] The GAO reasoned that, when outputs decline, there are fewer goods for trucking to haul.

The GAO used Bureau of Labor Statistics (BLS) data from 1972 through 1981. These dates included eight years prior to deregulation, but only a year and a half after deregulation. The GAO analysis did not include the influence of certain non-trucking variables such as rail competition, private company hauling, and improved productivity from larger trucks and longer hauls. [Ref. 2:p. 2]

The GAO analysis, which accounted for about 80 percent of the trucking unemployment rate, concluded that the increases in trucking unemployment were more likely caused by a downturn in the economy and that deregulation was only a minor influence. [Ref. 2:p. 6]

2. Union vs. Nonunion

The study will also examine the differential in wages between union and nonunion personnel in the transportation industry compared to the differentials in other industries. In a recent study, Rose [Ref. 4] examined labor rent-sharing since deregulation. Rose focused on industry wage responses to regulation in the motor carrier industry. She determined from union contract evidence and aggregate data on

average industry earnings that there were substantial changes in wage determination after deregulation [Ref. 4:p. 36]. Rose examined the differences between union wages and nonunion wages. Her research indicates a decline of about 40 percent in the size of the union differential. Rose estimated that annual earnings for a "representative" union driver in 1983 to 1985 were $3,800 less than they would have been if the regulatory wage differential was maintained. [Ref. 4:p. 2]

C. THE RESEARCH QUESTION

The major question this thesis will attempt to answer is:

What effects, if any, has deregulation had on labor in the trucking industry?

D. SCOPE, LIMITATIONS, AND ASSUMPTIONS

This thesis is a statistical, analytical, and comparative study of changes in trucking labor from 1972 to 1987. The time frame was chosen because it includes eight years prior to and eight years after the MCA. Data for employment levels and wages were obtained from the Bureau of Labor Statistics (BLS) Employment and Earnings Manuals. Data was extracted for:

- the trucking industry;
- Class I railroads;
- pipe transportation;
- local and interurban transit;
- manufacturing (durable goods);
- the mining industry;

- the construction industry;
- the national figures;
- the total transportation industry;
- the Consumer Price Index for urban wage earners (CPI-W).

The latter three industries were obtained in order to perform analysis similar to the 1982 GAO study. Mining was included because of its direct influence on the transportation industry. In addition, the mining industry is similar to many segments of transportation as it has also experienced a major change in its organized labor patterns. [Ref. 11:p. 26]

The national employment and wage figures and the CPI were included as a gage for economic conditions. Using these figures, the trucking industry was measured and compared to overall national trends in wages and employment.

In the transportation industry, data was obtained from diverse but related segments. Class I railroads were selected because the railroads experienced regulatory reforms during the same time frame as the trucking industry.

Figures for pipe transportation were obtained because the pipe industry is still regulated. Local and interurban transit was chosen because of its diverse nature. Figures for urban transit include light and heavy rail systems, buses, taxicabs, and intercity highway transportation. Much of the industry is regulated and many of the employees are unionized. The urban transit industry has been traditionally, in total, the lowest paying segment of the transportation industry.

In the trucking industry, BLS figures for trucking and warehousing were used. The more general figures were utilized because the industries are very interrelated and can be considered "symbiotic." Both segments are heavily unionized with the IBT as the major union [Ref. 2:p. 13]. The trucking figures include Class I, Class II, and Class III carriers.

The data was obtained from the BLS Employment and Earnings Manual. Statistics by the BLS are obtained from household surveys and employer reports. The employment hours and earnings data are based on payroll reports from a sample of 290,000 establishments employing 38 million non-agricultural wage and salary workers [Ref. 12:p. 137]. All data used in the thesis is from non-supervisory wage earners. Because of the large sample size, the data extracted from the BLS is a reliable estimation of national labor resources.

E. SUMMARY OF FINDINGS

Results from the study suggest that deregulation has not affected total employment in the industry but has negatively affected wages in the industry.

II. METHODOLOGY

A. EMPLOYMENT

1. Regression

Organization of the study focuses on two main aspects of labor: employment and wages. Unlike the 1982 GAO report, employment levels were tested versus unemployment rates. Employment levels were chosen as they more accurately reflect the growth and/or contraction of the selected industries. Employment figures for the selected industries and the national total from January 1972 to December 1986 were obtained from the BLS Employment and Earnings Manuals (see Table 1). Yearly percent changes in employment were calculated from the data (see Tables 2 and 3). To perform the calculations, the expression,

$$\frac{Y2 - Y1}{Y1} \times 100\% \qquad (1)$$

was used. The above expression is utilized by the BLS to calculate CPI changes. Employment levels were only obtained up to December 1986 in order to prevent contamination from seasonal effects of data obtained for the first quarter of 1987.

The yearly percent change of employment in the trucking and six selected industries was correlated and regressed against the percent change in the national employment levels (see Tables 4-6). The national figures were used as a predictor for the industries. The

regression analysis was performed for three time periods. The first test included the 14-year time span from 1972 through 1986. The second test was limited to the 1972-1979 regulatory period. The third test was performed for the deregulation years of 1980 through 1986. The three tests were performed so that a comparison could be made between employment levels before and after deregulation.

Prevailing economic conditions would appear to be the dominant factor if employment figures of the selected industries displayed a high correlation to the national figures during all three time periods. A low correlation would suggest that influences other than economic conditions factored in.

Correlation and regression analysis were then performed between the selected transportation industries and the total transportation figures (see Tables 7-9). As before, the tests were conducted for the three different time periods. This test was used to determine the differences in employment levels between regulated and deregulated segments of the industry. Although the test did not take into account certain variables such as contraction or expansion of selected industries, the test was intended as a gage to determine the effects, if any, of deregulation. If there were no influences of deregulation in the industry, then regulated and deregulated segments of transportation would display similar trends in employment. Any deviation in trends would suggest that deregulation has influenced employment levels.

Multiple regression was also performed on the data (see Tables 10-12). In the multiple regression analysis, the four transportation

segments of trucking, Class I railroads, pipe, and urban transit were regressed against the national and total transportation figures. The addition of the second predictor was designed to enhance the accuracy of the criterion and to serve as a check for deregulation. The following coefficients are used in the regression tables:

r	= correlation;
R^2	= percent of the variance in the criterion that can be explained by the predictor;
coeff.	= mathematical constant representing the slope of the regression line;
Coeff. Std. Dev.	= the standard deviation of the coeff. A large standard deviation indicates a low validity coefficient;
Const.	= constant where the regression line intercepts the ordinate;
s	= estimated deviation about the regression line. A small "s" reflects a strong validity in the test;
MS	= mean square error = s^2. MS is the population variance;
t-act	= coeff. divided by Coeff. Std. Dev. A large t-act reflects a good test result.

2. Two-Sample Hypothesis

Two-sample t-tests were also performed on the employment data. The tests were conducted to determine if there were any significant differences between the true means of employment percent changes of the industries with that of:

1. the national figures (Tables 13-15);
2. the total transportation industry (Tables 16-18)

As with the regression analysis, the data was categorized into the three different time periods (1972-1986; 1972-1979; 1980-1986). A 5-percent significance level was used. In the test,

Ho : mu1 = mu2 (accept)

Ha : mu1 ≠ mu2 (reject)

Coefficients used in the t-test tables are:

T = Test statistic;

t = probability distribution (theoretical) corresponding with α = .05;

P = smallest value of α for which the test would result in a rejection;

DF = degrees of freedom;

95% CI = 95% confidence interval;

α = level of significance (.05)

T-tests were conducted because of the small sample sizes (10-28). In order to perform a two-sample t-test, two assumptions were necessary. These assumptions are:

1. Both populations are normal, so that X1, X2, ..., Xm is a normal random sample and so is Y1, Y2, ..., Yn (with Xs and Ys independent of each other).

2. The values of the two population variances σ_1^2 and σ_2^2 are equal, so that their common value can be denoted as σ^2 (which is unknown). [Ref. 13:p. 287]

These assumptions are reasonable and permit usage of the test. All tests were conducted twice to ensure accuracy and consistency.

B. WAGES

1. Regression

Wages for the selected industries and the national average were extracted from January 1972 to March 1987 BLS Employment and Earnings Manuals (see Tables 19-20). From the data, yearly percent changes were calculated using equation (1) (see Tables 21-22). The percent changes in wage rates were grouped into three time periods:

1972-1987: the total time period;

1972-1979: the regulation time period;

1980-1987: the deregulation time period.

In addition to the percent changes in wage rates being recorded, the percent changes in the Consumer Price Index for Urban Wage Earners (CPI-W) were also included. Percent changes in the CPI-W were obtained from the May 1987 BLS Consumer Price Index Manual.

Regression, correlation, and two-sample hypothesis tests were performed on the data. Simple regression was performed to:

1. Measure the relationship between the percent changes in wage rates of the selected industries with the percent change in the national wage rates (Tables 36-38 for hourly rates, Tables 39-41 for weekly rates).

2. Measure the relationship between the percent changes in wage rates of the selected industries with the CPI-W (Tables 30-32 for hourly rates; Tables 33-35 for weekly rates).

3. Measure the relationship between the percent changes in wage rates of the four transportation industries with the percent change in wage rates for the total transportation industry (Tables 42-44 for the hourly rates; Tables 45-47 for the weekly rates).

Multiple regression was also conducted to measure the difference between:

1. the seven selected industries correlated with the national wage percent changes and the CPI-W (Tables 48-53);
2. the four transportation segments correlated with the national wage percent changes, the CPI-W, and the total transportation wage percent changes (Tables 54-59).

As in the employment figures, wages were separated into the three time periods to compare any differences that may have occurred between the time periods.

If the percent changes in wage rates of an industry displayed a high correlation to the national percent changes during all three time periods, prevailing economic conditions would appear to be the driving force behind wage changes. A low correlation for any time period would suggest that influences other than economic conditions factored in.

Correlations and regressions were also conducted to determine how the trucking industry compared to the other segments of the transportation industry. If there were no influences of deregulation in the industry, regulated and deregulated segments of transportation would display similar trends in wage changes. Any deviation in trends that was displayed in the simple and multiple regressions would indicate that deregulation has had an influence on wage rate changes. By performing multiple regressions containing variables for the national wage changes, the industry wage changes, and the CPI-W, the results

would suggest whether deregulation was a determining factor on wage rates in trucking.

In addition to the statistical tests, wages for the 15-year period were adjusted to 1980 real dollars (see Tables 25-28). The adjustment was made to determine how real wages in the trucking industry compared to the six other industries and the national wage level. To calculate the adjusted wages, I used the following expression:

$$\frac{\text{CPI-W 1980}}{\text{CPI-W 19xx}} \text{ x Wage 19xx} \qquad (2)$$

[Ref. 14:p. 109]

2. Two-Sample Hypothesis

Two-sample t-tests were also performed on the wage data. The tests were conducted to determine if there were any significant differences between the true means of the percent changes in wage rates of:

1. the industries and the true mean of the national wage percent changes (see Tables 60-62 for hourly rates; Tables 63-65 for weekly rates);
2. the industries and the true mean of the CPI-W (see Tables 66-68 for hourly rates; Tables 69-71 for weekly rates);
3. the four transportation segments and the true mean of the total transportation percent wage changes (see Tables 72-74 for hourly rates; Tables 75-77 for weekly rates);

All tests were performed twice to ensure accuracy and consistency in the data.

3. Union and Nonunion Wages

Union and nonunion wages for the transportation industry, manufacturing (durable goods), mining, and the construction industry were obtained for the years 1983–1986 (see Table 78). Union wage data is a recent addition to the BLS Employment and Earnings Manual, and no records are maintained for the years prior to 1983. Data for the transportation industry was not separated into the various segments, and numbers for the trucking industry are not available. Because of the high correlation (.841) between trucking and the total transportation industry weekly wage changes, the figures for total transportation can be used as a gage for measuring union vs. nonunion wage differences in the trucking industry.

Nonunion wages were calculated as a percent of union wages (see Table 79). This calculation was performed to display the differences between union and nonunion wages in the four industries.

III. PRESENTATION OF DATA

The appendix contains the tables derived from the statistical and numerical analysis performed in the study. The tables included in the appendix are:

Table 1: Employment levels in selected industries from January 1972 through December 1986;

Table 2: Annual percent changes in employment levels of selected industries from January 1972 through December 1986;

Table 3: Comparative percent changes in employment levels of selected industries;

Tables 4-6: Simple regression analysis of the percent change in employment levels compared with the national employment levels;

Tables 7-9: Simple regression analysis of the percent change in employment levels of selected transportation industries compared with the total transportation employment levels;

Tables 10-12: Multiple regression analysis of the percent change in employment levels of selected transportation industries compared with the national and total transportation employment levels;

Tables 13-15: Two-sample t-test analysis of the percent change in employment levels of selected industries compared with the national employment levels;

Tables 16-18: Two-sample t-test analysis of the percent change in employment levels of selected transportation industries compared with the total transportation employment levels;

Table 19: Average hourly rates in selected industries from January 1972 through March 1987;

Table 20: Average weekly rates in selected industries from January 1972 through March 1987;

Table 21: Percent changes in hourly wage rates of selected industries from January 1972 through March 1987;

Table 22: Percent changes in weekly wage rates of selected industries from January 1972 through March 1987;

Table 23: Average percent changes in hourly wage rates of selected industries from January 1972 through March 1987;

Table 24: Average percent changes in weekly wage rates of selected industries from January 1972 through March 1987;

Tables 25–26: Average hourly wage rates in selected industries adjusted to 1980 real dollars;

Tables 27–28: Average weekly wage rates in selected industries adjusted to 1980 real dollars;

Table 29: Average hour work week for selected industries from January 1972 through March 1987;

Tables 30–32: Simple regression analysis of the percent changes in hourly wage rates of selected industries compared with the national wage percent changes;

Tables 33–35: Simple regression analysis of the percent changes in weekly wage rates of selected industries compared with the national wage percent changes;

Tables 36–38: Simple regression analysis of the percent changes in hourly wage rates of selected industries compared with the CPI–W percent changes;

Tables 39–41: Simple regression analysis of the percent changes in weekly wage rates of selected industries compared with the CPI–W percent changes;

Tables 42–44: Simple regression analysis of the percent changes in hourly wage rates of selected transportation industries with the total transportation percent changes;

Tables 45–47: Simple regression analysis of the percent changes in weekly wage rates of selected transportation industries with the total transportation percent changes;

Tables 48–50: Multiple regression analysis of the percent changes in hourly wage rates of selected industries compared with the national wage and CPI–W percent changes;

Tables 51–53: Multiple regression analysis of the percent changes in weekly wage rates of selected industries compared with the national wage and CPI–W percent changes;

Tables 54–59: Multiple regression analysis of the percent changes in hourly/weekly wage rates of selected transportation industries compared with the national wage, total transportation wage, and the CPI–W;

Tables 60–62: Two-sample t-test analysis of the percent changes in hourly wage rates of selected industries compared with the national percent changes;

Tables 63–65: Two-sample t-test analysis of the percent changes in weekly wage rates of selected industries compared with the national percent changes;

Tables 66–68: Two-sample t-test analysis of the percent changes in hourly wage rates of selected industries compared with the CPI–W percent changes;

Tables 69–71: Two-sample t-test analysis of the percent changes in weekly wage rates of selected industries compared with the CPI–W percent changes;

Tables 72–74: Two-sample t-test analysis of the percent changes in hourly wage rates of selected transportation industries compared with the total transportation percent changes;

Tables 75–77: Two-sample t-test analysis of the percent changes in weekly wage rates of selected transportation industries compared with the total transportation percent changes;

Table 78: Union vs. nonunion weekly wages in selected industries;

Table 79: Nonunion weekly wages as a percent of union wages;

Table 80: Percentage of union employees in selected industries.

IV. DATA ANALYSIS

A. EMPLOYMENT

1. Analytical Introduction

Employment in the trucking industry has displayed many ups and downs since 1972. Although employment has increased 220,000 from 1972 to 1986 (see Table 1), it has not been a steady, upward growth. The employment patterns for trucking experienced decreases in the recession years of the mid-1970s (1975-1976) and the early 1980s (1980-1984). This up-and-down pattern also occurred in the employment levels of the total transportation industry (where trucking figures account for about 40 percent), Class I railroads, the construction industry, and manufacturing (durable goods).

Even though the trucking industry suffered contractions during the recession years, it was not as hard-hit as construction and manufacturing. As an example, in 1974-1975, trucking employment decreased 7.96 percent, compared to 12.76 percent in manufacturing and 14.75 percent in construction.

In the transportation industry, trucking has not fared as badly as other segments. The trucking industry has displayed the greatest employment increases in transportation. Trucking underwent an overall 21.87-percent increase from 1972 through 1986 (see Table 3). This increase was split almost evenly between the regulation and deregulation years (11.54 percent and 9.27 percent, respectively).

The closeness of the figures suggests that deregulation has not had an effect on employment levels in the trucking industry. It is important to note that the growth in trucking coincided with the contraction of the rail industry. Employment levels in Class I railroads displayed an overall decrease of 44.02 percent (see Table 3).

2. Regression Analysis

a. National Figures

During the 1972-1986 time period, annual percent changes in trucking employment displayed a fairly low correlation (.492) and R^2 (24.2 percent) with that of the national employment levels. This result was slightly lower than those of the transportation, Class I railroads, and manufacturing (durable goods) industries (see Table 4). When the yearly data was split between the regulation and deregulation time periods, major differences were observed.

The correlation and R^2 between the trucking employment changes and the national employment changes for the regulation years (1972-1979) is a high .914 and 83.5 percent (see Table 5). This figure is higher than all the other industries used in the study. This result suggests that the percent changes in trucking employment closely followed the changes in national levels. The R^2 value of 83.5 percent represents the total amount of variance in the trucking employment levels that can be explained by trends that occurred nationally.

Different results are obtained for the deregulation years (1980-1986). The annual percent change in trucking employment

rates displayed a low .472 correlation to the national employment changes (Table 6). With the exception of the mining industry, this is the lowest correlation received for the seven industries used in the study. A low R^2 (22.3) and a large s (4.526) were obtained from the regression analysis. This result suggests that changes in trucking employment did not closely follow the national employment trends. Almost 80 percent of the variance in trucking employment changes during deregulation cannot be explained by employment trends that occurred nationally.

b. Total Transportation Figures

The percent changes in employment levels of the four selected transportation industries were regressed against the annual percent changes in employment of the total transportation industry. The trucking industry displayed a high correlation (.927) and R^2 (85.9 percent) to the transportation industry from 1972 through 1986 (see Table 7). Although the R^2 for trucking was higher than the R^2 for the other three industries, it is important to remember that trucking employment makes up 40 percent of the total transportation employment.

During the regulation (Table 8) and deregulation time periods (Table 9), the high correlation persists (.947 and .958, respectively). The low s indicates that both tests are high in validity. The results obtained suggest that there has been little difference between the regulation and deregulation percent changes in employment of trucking compared with the total transportation industry.

3. Multiple Regression

Multiple regression analysis was performed for the different time periods using national employment changes and total transportation employment changes as predictors for employment changes in trucking. During the 1972-1986 time period, a high R^2 of 86.1 percent was received (see Table 10). The R^2 for the regulation years was a lower 64.4 percent (see Table 11). The R^2 for the deregulation years reached a very high 93.4 percent (see Table 12). In all cases, the trucking industry displayed the highest R^2s in the industry.

These results differ from the simple regression analysis using only the national employment figures. The multiple regression results indicate that employment changes in trucking were more closely related to employment changes in the transportation industry than that of the national levels. This is an expected result because of the large influence of trucking on the total transportation industry.

4. Two-Sample Hypothesis

Two-sample t-tests were performed to determine if there were any significant differences in the true mean of changes in trucking employment with that of the national and total transportation employment changes (see Tables 13-18). All tests for the time periods resulted in no significant difference. The deregulation years resulted in an extremely high P (.98) and a large confidence interval (-4.44, 4.2) between trucking and the national employment levels. Trucking was the only transportation segment that did not differ significantly from the national means for the 1972-1986 time period

(see Table 13). The mean employment percent change in trucking also fell nicely in with the true mean of the total transportation industry (see Tables 16-18). These results indicate that the true mean of employment changes in trucking for the selected time periods closely followed the changes in the national and total transportation industries.

B. WAGES

1. Analytical Introduction

Wages in the trucking industry have displayed a fluctuating growth from 1972 through 1987 (see Tables 19 and 20). To determine the amount of actual growth, annual percent changes in wages were calculated (see Tables 21 and 22).

From 1972 through 1987, the trucking industry experienced an average hourly wage increase of 5.50 percent per year (see Table 23). With the exception of the construction industry (4.90-percent increase), the 5.50 percent was the lowest average hourly wage increase of the seven industries tested. When the data was separated between the regulation and deregulation years, major differences were observed.

The average annual increase of hourly wages in the trucking industry was 8.21 percent during the 1972-1979 regulation time period. This figure was .6 percent higher than the national wage increases and about equal to that of the total transportation industry. Although this average increase appears large, trucking actually received the second to lowest wage increases, next to construction, of

the seven industries tested. This result appears to counter the pro-deregulation argument that employees in the trucking industry received artificially high wages due to the protectiveness of regulation.

The average hourly wage increase that occurred after deregulation was strikingly different than the regulation years (see Table 23). The trucking industry only received an average 2.36-percent increase in hourly wages per year. This figure was almost 2 percent lower than the national level, and lower than all the other industries tested. Even the traditionally low-paying interurban and local transportation industry received an average increase of 3.59 percent in hourly wages, over a percent higher than trucking.

When the wage test was performed for weekly wages, similar but more dramatic results were observed (see Table 24). From 1972 through 1987, the average work week of the trucking industry contracted from 41.9 hours/week to 38.2 hours/week (see Table 29). This contraction in hours had a noticeable effect on wages. The average annual increase in weekly wages was only 4.87 percent from 1972 through 1987. This average increase was almost a percent lower than the national wage increases, and the lowest among the industries tested. From 1972 through 1979, trucking received an average annual increase of 7.33 percent in weekly wages. This increase was slightly higher than the national wage increase of 7.00 percent. Again, construction was the only industry of those tested that received lower percent increases in pay (6.57 percent).

The average annual increase in weekly wages for the trucking industry during deregulation was an extremely low 2.06 percent. Nationally, the average annual increases in weekly wages was almost double that of trucking, with a 3.90-percent annual increase. The trucking industry received the lowest annual increases in weekly wages of all the industries tested. These results suggest that wages in the trucking industry were adversely affected by deregulation. This is an expected result due to the increase of lower-paid nonunion competition that has entered the trucking industry since the MCA of 1980.

2. Adjusted Wages

Hourly wages in trucking and the other industries were adjusted to 1980 real dollars (see Table 25). Average annual adjusted wages from 1972 to 1987, 1972 to 1979, and 1980 to 1987 were then calculated (see Table 26). The average hourly wage (adjusted) for the deregulation period ($8.89) was 7.7 percent lower than the average hourly wages (adjusted) received during the regulation years ($9.63). Even though other industries and the national wage level also experienced contractions in real wages between the two time periods, the decrease in trucking (with the exception of construction) was the greatest.

When weekly wages were adjusted to 1980 real wages, more striking results were obtained. Weekly real wages in trucking declined 12.77 percent from the regulation time period ($391.23) to the deregulation time period ($341.25). This fifty-dollar decrease was

four percent greater than the decrease in real national weekly wages (8.67 percent) and eight percent greater than the decrease in the total transportation industry real wages (4.70 percent). The decrease was the greatest for all the industries tested. These results on real wages support the views of deregulation opponents that deregulation has resulted in a lower standard of living for employees in the trucking industry.

3. Regression Analysis

a. National Figures

(1) Hourly. During the 1972-1987 time period, annual percent changes in hourly wage rates for the trucking industry displayed an extremely high correlation (.949) to the national wage changes (see Table 30). This result, except for total transportation, was the highest correlation received for the industries tested. The R^2 of 90.1 percent represents the total amount of variance in trucking wage changes that can be explained by trends that occurred nationally. The low s (1.212) indicates that the test was high in validity. When the data was split between the regulation and deregulation years, dramatic differences were observed.

During the regulation time period (1972-1979), the correlation between trucking and national wages was .384 (see Table 31). Although this is a low to moderate result, it was the highest among all the industries tested. This result suggests that wages in the industries selected for the analysis moved independently from the national average. Two industries, Class I railroads and mining,

displayed R^2s of 0.0 percent. Opposite results were achieved for the deregulation time period (1980-1987). Five of the eight industries resulted in correlations higher than .900 (see Table 32). The trucking industry displayed a solid .960 r, 92.1-percent R^2, .9614 s, and 7.64 t-act. The transportation and manufacturing (durable goods) industries demonstrated slightly higher correlations. This result suggests that all industries were in tune with wage changes that were occurring nationally, and that trucking did not stand out from the other industries.

(2) Weekly. Similar results were obtained when percent changes in weekly wage rates were tested. The trucking industry demonstrated a high .874 r, 76.3-percent R^2, and 6.41 t-act when regressed against the national figures for the 1972-1987 time period (see Table 33). The transportation, manufacturing (durable goods), and construction industries displayed slightly higher correlations. For the regulatory time period, trucking demonstrated a moderate correlation of .501 to the national figures (see Table 34). As with the hourly data, all industries displayed a low relationship to the national percent changes.

During the deregulation time period, all industries (with the exception of rail and interurban transit) displayed high correlations to the national figures (Table 35). Trucking resulted in an r of .887 and R^2 of 78.6 percent. The transportation, manufacturing (durable goods), mining, and construction industries resulted in slightly higher correlations.

The overall results for both weekly and hourly wages appear to counter the arguments of deregulation advocates that wages in the trucking industry were out of whack with trends that were occurring nationally. Although low to moderate correlations between trucking and the national wage changes were obtained during deregulation, they were the highest of all the industries tested.

b. CPI Figures

(1) Hourly. During the 1972-1987 time period, annual percent changes in hourly wages displayed a moderately high (.782) correlation and (61.2 percent) R^2 to the annual percent changes in the CPI. The relationship for trucking was higher than the other transportation segments tested, but somewhat lower than the results obtained for the national wages (see Table 36). When the industries were regressed against the CPI for the regulation years, extremely low and many negative results were obtained (see Table 37). The trucking industry demonstrated a -0.031 r and 0.1-percent R^2. This was the second lowest for the industries tested. National wages somewhat followed the CPI with a .450 correlation.

Slightly opposite results were obtained for the deregulation years. Changes in the hourly wages of trucking displayed a high (.870) correlation to the changes in the CPI. These results suggest that wage changes in the trucking industry were unrelated to changes in the CPI during the regulation years, but very related to the CPI during the deregulation years. This result would support the views of deregulation advocates except for the fact that all the

industries tested displayed low or negative correlations to the CPI during the 1972-1979 time frame (with the exception of construction, which displayed a .505 correlation).

(2) Weekly. Somewhat different results were obtained when changes in weekly wages were regressed against the CPI. For the 1972-1987 time period, trucking displayed a moderate correlation (.637) and R^2 (40.6 percent) to the CPI (see Table 39). For the regulation time period, trucking demonstrated a moderately low negative correlation (-.488) and R^2 (20.1 percent) to the CPI (see Table 40). During the deregulation time period, trucking displayed a high (.853) correlation to the CPI (see Table 41). Similar results for the three time periods were obtained for all the industries tested. These results reinforce the views of regulation advocates that wages in the trucking industry did not differ significantly from trends that were occurring in other major industries.

c. Transportation Figures

(1) Hourly. The percent change in wage rates of the four selected transportation segments were regressed against the annual percent changes in hourly wages of the total transportation industry. The trucking industry displayed the highest correlation (.963) and R^2 (92.6 percent) to the transportation industry from 1972 through 1987 (see Table 42). Although the R^2 for trucking was higher than the R^2s for the other three industries, it is important to remember that trucking employment makes up 40 percent of the total

transportation employment. This relationship undoubtedly affects the results obtained.

During the regulation time period, trucking resulted in a moderate correlation (.544) and R^2 (29.9 percent) to the total transportation industry (see Table 43). Even though this is a somewhat low result, it was the highest for the industry. Moderate to high correlations and R^2s were received when the regression analysis was performed for the deregulation time period. Trucking resulted in an extremely high .974 r and 94.8-percent R^2 (see Table 44).

(2) Weekly. Fairly different results were obtained when weekly wages were regressed against the total transportation figures. For the 1972-1987 time period, trucking displayed a high correlation (.907) and R^2 (82.3 percent) to the wage changes in the transportation industry (see Table 45). For the regulation time period, trucking demonstrated a moderately high correlation of .755 and a R^2 of 61.6 percent (see Table 46). A correlation of .841 and R^2 of 70.7 percent was obtained for the deregulation time period (see Table 47). Both the hourly and weekly wage data suggest that wage changes in trucking with respect to the transportation industry did not differ greatly between the regulation and deregulation time periods.

4. Multiple Regression

a. National and CPI Figures

(1) Hourly. Multiple regression analysis was performed for the different time periods using percent changes in national wages and the CPI as predictors for wage changes in trucking. During the

1972-1987 time period, a high R^2 for hourly wages of 89.1 percent was received (see Table 48). This was the highest R^2 (with the exception of total transportation) for all the industries tested. A low R^2 of 31.1 percent was received when trucking was regressed against the national and CPI changes during the regulation years (see Table 50). Although this figure was rather low, it was the third highest (behind urban transit and total transportation) of all the industries tested. High results (92.9) again were achieved for the deregulation time period (see Table 52). Total transportation, manufacturing (durable goods), and construction displayed slightly higher R^2s.

(2) Weekly. Similar but less dramatic results were obtained for weekly wages. An R^2 of 72.2 percent was received for the 1972-1987 time period (see Table 49). A 51-percent R^2 was obtained for the regulation time period (see Table 51). An R^2 of 79.0 percent resulted from the regression analysis performed for the deregulation time period (see Table 53). The results again indicate that there is no evidence that wage changes in the trucking industry deviated significantly from trends that occurred nationally. Not only did wage changes in trucking display a strong relationship to changes that occurred nationally during the deregulation years, trucking also followed trends that were persistent during the regulation time period.

b. National, CPI, and Transportation Figures

(1) Hourly. The multiple regression analysis was then performed for the four transportation industries with the added

predictor of total transportation wage changes. During the 1972-1987 time period, trucking demonstrated an extremely high R^2 of 92.6 percent (see Table 54). The R^2 for the regulation time period increased to 45 percent, 14 percent over the results received for the two predictors (see Table 56). This result, though higher than the Class I rail and pipe transportation industries, was almost one-half the 83.2-percent result for urban transit. The deregulation R^2 improved to 96.7, a slight increase over the two predictor data (see Table 55). This was the highest R^2 obtained for the deregulation test.

(2) Weekly. The results for the weekly changes were similar but less dramatic. An 82.8-percent R^2 for trucking was obtained for the 1972-1987 time period (see table 55). This result was the highest in the transportation industry. A strong 65.5-percent R^2 for trucking was obtained for the regulation time period (see Table 57). Unlike the hourly results, this was the highest R^2 in the industry. The trucking industry posted a solid 80.5-percent R^2 during the deregulation years. Once again, this was the highest R^2 in the industry.

The tests using the third predictor strengthen the results derived from the previous regression analysis. These results suggest that wages in the trucking industry did not deviate from national wage changes or CPI changes to any significant degree. In fact, the trucking industry appeared to be more in tune to national trends, in respect to wage changes and CPI changes, than the other six industries tested.

5. Two-Sample Hypothesis

Two-sample t-tests were performed to determine if there were any significant differences in the true mean of changes in trucking wages (hourly and weekly) with that of the national and total transportation wage changes and CPI changes (see Tables 60 through 77). All tests for trucking resulted in no significant differences. In almost all tests, trucking demonstrated high relative Ps and large confidence levels. These results indicate that the true mean of wage changes in the trucking industry closely simulated the true means of the national and total transportation wage changes and the CPI changes.

6. Union and Nonunion Wage Differences

Table 78 displays average union and nonunion weekly wages for the transportation, manufacturing (durable goods), mining, and construction industries from 1983 through 1986. Nonunion wages were calculated as a percent of union wages and are displayed in Table 79. After a low of 68.5 percent in 1983, nonunion wages in the transportation industry have been maintained at about 73 percent of union wages. These results are considerably lower than the manufacturing and mining industries, but substantially higher than the construction industry.

The large gap between union and nonunion wages, coupled with a decreasing percentage of union employees (see Table 80), supports union claims that deregulation has resulted in a lower standard of living for union employees.

V. CONCLUSIONS

Results from the study suggest that deregulation has not had an effect on total employment in the trucking industry, but has had a negative effect on wages in the industry.

The analytical and statistical tests performed on employment indicate that:

- the trucking industry has displayed an almost equal growth in employment during the regulation and deregulation time periods;
- the trucking industry actually demonstrated a strong growth in employment compared to the other industries tested;
- growth in the trucking industry closely followed the employment growth of the total transportation industry;
- the true mean of employment changes in the trucking industry did not significantly differ from the true means of employment changes in the transportation industry and national levels.

This result is not completely conclusive because of the low correlation (.472) which resulted when trucking employment changes were regressed against the national employment changes. However, this test alone (especially because of the small sample size) is not sufficient evidence to counter the conclusions derived from the other tests.

The results for employment are somewhat expected because of the expansion the trucking industry has experienced in the past 15 years. Employment was not separated between union and nonunion levels, but, because of the decreasing percentage of union personnel in the industry (see Table 80), results indirectly support the IBT's findings on the increasing unemployment of union personnel.

The analytical and statistical tests for wages, though not completely conclusive, suggest that wages in the trucking industry have been adversely affected by deregulation. Results that support this conclusion are:

- hourly and weekly changes in the trucking industry were the lowest of the industries tested for the 1980–1987 deregulation time period;
- the trucking industry experienced the greatest decrease in 1980 real wages (12.77 percent) of the industries tested. Hourly wages also decreased by 7.7 percent, which was the second largest contraction (next to construction) of the industries tested;
- the wide gap (25 percent) between union and nonunion wages coupled with the decreasing percentage of union employees in the transportation industry.

The study also contradicted long-held views of deregulation advocates. Results which counter the deregulation argument are:

- wage changes in the trucking industry more closely followed national trends, in both wage and CPI changes, during the regulation (1972–1979) time period than the other six industries tested. There is no evidence that wages were artificially high due to regulation;
- wage changes in trucking with respect to national levels and the transportation industry did not significantly differ between the regulation and deregulation time periods.

Not all results obtained support the conclusion that deregulation has affected wages. Two-sample t-tests demonstrated that there were no significant differences in the true means of trucking wage changes with the true means of national and transportation wage changes. However, the true means of trucking were consistently lower than that of the national and transportation wage changes.

The introduction to the study ended with a statement that the debate over deregulation and its effects on labor is far from being resolved. Although this study is not completely conclusive, it has shed a great deal of light on the subject. This light shines dangerously on labor in the trucking industry.

TABLE 1

EMPLOYMENT LEVELS IN SELECTED INDUSTRIES
(INCLUDING NATIONAL LEVELS)
FROM JANUARY 1977 TO DECEMBER 1986
(in thousands)

Year	National	Transp.	Trucking	Railroad	Pipe	Urban	Mfg.	Mining	Const.
1972	88,847	2,678	1,005.4	526.3	13.1	260.4	8,051	475	3,257
1973	91,203	2,747	1,060.7	524.0	13.1	261.5	8,728	486	3,405
1974	93,670	2,780	1,062.2	538.7	13.5	260.9	8,662	530	3,294
1975	95,453	2,635	977.6	497.5	13.3	252.8	7,557	571	2,808
1976	97,826	2,680	1,012.8	494.2	13.2	247.3	7,914	592	2,814
1977	100,665	2,782	1,078.3	502.2	13.6	242.1	8,307	618	3,021
1978	103,882	2,906	1,154.0	490.2	14.2	237.9	8,805	638	3,354
1979	106,559	3,021	1,183.7	502.6	14.3	242.0	9,110	719	3,565
1980	108,544	2,962	1,121.4	481.9	15.2	244.0	8,442	762	3,421
1981	110,315	2,922	1,094.3	456.8	15.3	245.5	8,294	841	3,261
1982	111,872	2,789	1,049.5	397.8	14.7	244.6	7,311	821	2,998
1983	113,226	2,739	1,057.8	348.1	14.1	238.2	7,151	673	3,033
1984	115,241	2,919	1,149.2	345.3	13.5	250.8	7,739	686	3,406
1985	117,167	3,006	1,195.5	322.6	13.4	255.1	7,660	660	3,670
1986	119,540	3,008	1,225.3	294.6	13.5	261.1	7,505	566	3,885

TABLE 2

ANNUAL PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED INDUSTRIES (INCLUDING NATIONAL LEVELS) FROM JANUARY 1972 TO DECEMBER 1986

Year	National	Transp.	Trucking	Railroad	Pipe	Urban	Mfg.	Mining	Const.
72-73	2.65	2.58	5.50	-.43	0	.42	8.41	2.32	4.54
73-74	2.70	1.20	1.41	2.81	3.05	-.22	-.75	9.05	-3.26
74-75	1.90	-5.22	-7.96	-7.64	-1.48	-3.10	-12.76	7.74	-14.75
75-76	2.49	1.71	3.60	-.66	-.75	-2.18	4.72	3.68	.21
76-77	2.90	3.81	6.46	1.62	3.03	-2.10	4.97	4.39	7.36
77-78	3.20	4.46	7.02	-2.39	4.41	-1.70	5.99	3.13	11.02
78-79	2.58	3.96	2.57	2.53	.70	1.72	3.46	12.70	6.29
79-80	1.86	-1.95	-5.26	-4.12	6.29	.82	-7.33	6.74	-4.04
80-81	1.63	-1.35	-2.42	-5.21	.65	.61	-1.75	10.37	-4.68
81-82	1.41	-4.55	-4.09	-12.92	-3.92	-.36	-11.85	2.38	-8.07
82-83	1.21	-1.79	.79	-12.49	-4.08	-2.62	-6.04	-18.03	1.17
83-84	1.78	6.57	8.64	-.80	-4.26	5.29	8.22	1.93	12.30
84-85	1.67	2.98	4.03	-6.57	-.74	1.71	-1.02	-3.79	7.75
85-86	2.03	.06	2.49	-8.68	.74	2.35	-2.02	-13.76	5.94

TABLE 3

COMPARATIVE PERCENT CHANGES IN EMPLOYMENT LEVELS OF SELECTED INDUSTRIES (INCLUDING NATIONAL LEVELS) FROM JANUARY 1972 THROUGH DECEMBER 1986

INDUSTRY	YEARS	% Δ
National	72-86	34.50
	72-80	22.17
	80-86	10.13
Transportation	72-86	12.32
	72-80	10.60
	80-86	1.49
Trucking	72-86	21.87
	72-80	11.54
	80-86	9.27
Rail	72-86	-44.02
	72-80	-8.44
	80-86	-38.87
Pipe	72-86	3.05
	72-80	16.03
	80-86	-11.18
Urban Transit	72-86	.27
	72-80	-6.29
	80-86	7.01
Manufacturing	72-86	-6.78
	72-80	4.86
	80-86	-11.10
Mining	72-86	19.07
	72-80	60.42
	80-86	-25.79
Construction	72-86	19.28
	72-80	5.04
	80-86	13.65

TABLE 4

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT LEVELS FROM JANUARY 1972 TO DECEMBER 1986

	NATIONAL							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.492	24.2	4.031	2.061	-7.105	4.490	20.16	1.96
Rail	.789	62.2	6.794	1.529	-18.483	3.332	11.10	4.44
Pipe	.438	19.2	2.757	1.632	-6.133	3.555	12.64	1.69
Urban Transit	-.189	3.6	-.721	1.084	1.585	2.361	5.58	-0.67
Total Transit	.568	32.3	3.288	1.374	-6.156	2.993	8.96	2.39
Manufacturing	.643	41.4	7.417	2.548	-16.453	5.552	30.82	2.91
Mining	.461	21.2	6.692	3.720	-12.623	8.105	65.68	1.80
Construction	.389	15.1	4.985	3.413	-9.130	7.436	55.29	1.46

TABLE 5

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT LEVELS FROM JANUARY 1972 TO DECEMBER 1979

	NATIONAL							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.914	83.5	10.982	1.995	-26.331	2.426	5.88	5.51
Rail	.623	38.9	4.863	2.491	-13.364	3.029	9.17	1.95
Pipe	.149	2.2	.880	2.386	-.324	2.902	8.42	0.37
Urban Transit	-.054	0.3	-.203	1.518	-.279	1.846	3.41	-0.13
Total Transit	.891	79.4	6.481	1.349	-15.109	1.640	2.69	4.80
Manufacturing	.831	69.1	13.277	3.622	-32.818	4.404	19.40	3.67
Mining	-.318	10.1	-2.444	2.971	12.415	3.613	13.05	-0.82
Construction	.845	71.4	15.124	3.905	-37.420	4.748	22.55	3.87

TABLE 6

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT LEVELS FROM JANUARY 1980 TO DECEMBER 1986

	NATIONAL							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.472	22.3	7.588	7.081	-10.730	4.526	20.48	1.07
Rail	.584	34.1	9.410	6.544	-23.040	4.183	17.49	1.44
Pipe	.610	37.2	5.163	3.355	-10.306	2.144	4.59	1.54
Urban Transit	.796	63.4	7.440	2.826	-10.900	1.806	3.26	2.63
Total Transit	.517	26.7	7.100	5.884	-11.193	-7.610	14.14	1.21
Manufacturing	.573	32.9	13.238	9.460	-23.880	6.046	36.56	1.40
Mining	.170	2.9	6.160	17.850	-14.270	11.410	130.10	0.35
Construction	.536	28.7	14.530	11.450	-21.160	7.318	55.35	1.27

TABLE 7

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION EMPLOYMENT LEVELS FROM JANUARY 1972 TO DECEMBER 1986

	NATIONAL							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.927	85.9	1.314	.1537	.365	1.937	3.75	8.55
Rail	.704	49.6	1.049	.3052	-4.854	3.846	14.79	3.44
Pipe	.099	1.0	.107	.3123	5.319	3.936	15.49	0.35
Urban Transit	.456	20.8	.301	.1698	-.227	2.140	4.57	1.77

TABLE 8

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION EMPLOYMENT LEVELS FROM JANUARY 1972 TO DECEMBER 1979

	NATIONAL							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.947	89.8	1.566	.258	-.555	1.909	3.65	7.25
Rail	.254	6.4	.860	1.338	-1.001	3.747	14.04	0.64
Pipe	.003	0	-	-	-	2.935	8.61	0.01
Urban Transit	.281	7.9	.143	.201	-.982	1.774	1.61	.07

TABLE 9

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION EMPLOYMENT LEVELS FROM JANUARY 1980 TO DECEMBER 1986

	NATIONAL							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.958	91.7	1.119	.1685	1.214	1.480	2.192	6.64
Rail	.859	73.8	1.007	.3004	-8.103	2.639	6.964	3.35
Pipe	-.046	0.2	-.028	.3077	-1.924	2.703	7.304	.09
Urban Transit	.824	68.0	.561	.1924	.985	1.690	2.855	2.91

TABLE 10

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT AND TOTAL TRANSPORTATION EMPLOYMENT LEVELS FROM JANUARY 1972 TO DECEMBER 1986

	NATIONAL							
Industry	R^2	trans. coeff.	national coeff.	const.	s	MS	trans. t-act	national t-act
Trucking	86.1	1.352	-.419	1.235	2.005	4.02	7.01	-.37
Rail	71.5	.561	4.923	-14.981	3.019	9.11	1.93	2.93
Pipe	43.7	-.259	4.103	-8.304	2.595	6.73	-1.04	2.84
Urban Transit	35.9	.519	-3.020	6.454	2.463	6.06	2.19	-2.20

TABLE 11

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT AND TOTAL TRANSPORTATION FIGURES FROM JANUARY 1972 TO DECEMBER 1979

Industry	R^2	trans. coeff.	national coeff.	const.	s	MS	trans. t-act	national t-act
			NATIONAL					
Trucking	64.4	1.790	-5.417	14.20	3.460	11.98	2.08	-.86
Rail	63.4	1.170	-2.719	4.31	2.567	6.59	1.83	-.58
Pipe	3.5	.204	-.440	2.75	3.158	9.97	.26	-.08
Urban Transit	52.9	.817	-5.499	12.07	1.391	1.93	2.36	-2.18

TABLE 12

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT AND TOTAL TRANSPORTATION FIGURES FROM JANUARY 1980 TO DECEMBER 1986

Industry	R^2	trans. coeff.	national coeff.	const.	s	MS	trans. t-act	national t-act
			NATIONAL					
Trucking	93.4	1.184	-.962	2.578	1.524	2.323	6.28	-.88
Rail	80.5	.878	1.923	-10.831	2.625	6.889	2.70	1.02
Pipe	37.3	-.187	2.364	-5.277	2.474	6.120	-.61	1.33
Urban Transit	94.0	.414	2.184	-2.115	.842	.710	3.97	3.61

TABLE 13

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT LEVELS FROM JANUARY 1972 THROUGH DECEMBER 1986

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.46	±2.056	0.65	26	(-2.14,3.30)
Rail*	4.33	±2.056	0.0002	26	(3.18,8.90)
Pipe*	2.30	±2.056	0.030	26	(0.25,4.5)
Urban Transit*	3.30	±2.056	0.0028	26	(0.79,3.41)
Total Transit	1.32	±2.056	0.20	26	(-0.70,3.20)
Manufacturing	1.44	±2.056	0.16	26	(-1.15,6.50)
Mining	0.18	±2.056	0.86	26	(-4.41,5.30)
Construction	0.28	±2.056	0.78	26	(-3.69,4.9)

M_1 = national $\alpha = .05$ *Reject Ho

M_2 = industry $\alpha/2 = .025$

TABLE 14

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT LEVELS FROM JANUARY 1972 THROUGH DECEMBER 1979

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.52	±2.145	0.61	14	(-3.18,5.2)
Rail*	2.79	±2.145	0.014	14	(0.83,6.3)
Pipe*	0.65	±2.145	0.53	14	(-1.46,2.72)
Urban Transit*	5.31	±2.145	0.0	14	(1.98,4.67)
Total Transit	1.02	±2.145	0.33	14	(-1.34,3.8)
Manufacturing	0.65	±2.145	0.52	14	(-3.88,7.3)
Mining	-2.93	±2.145	0.011	14	(-6.38,-1.0)
Construction	0.55	±2.145	0.59	14	(-4.63,7.9)

M_1 = national $\alpha = .05$ *Reject Ho

M_2 = industry $\alpha/2 = .025$

TABLE 15

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL EMPLOYMENT LEVELS FROM JANUARY 1980 THROUGH DECEMBER 1986

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.03	±2.228	0.98	10	(-4.14,4.2)
Rail*	4.99	±2.228	0.0	10	(5.20,13.6)
Pipe*	3.57	±2.228	0.0051	10	(1.34,5.77)
Urban Transit*	0.81	±2.228	0.44	10	(-2.28,4.9)
Total Transit	0.42	±2.228	0.69	10	(-1.99,2.9)
Manufacturing	1.49	±2.228	0.17	10	(-1.98,10.0)
Mining	1.39	±2.228	0.19	10	(-3.53,15.3)
Construction	-0.25	±2.228	0.81	10	(-7.84,6.3)

M_1 = national $\alpha = .05$ *Reject Ho

M_2 = industry $\alpha/2 = .025$

TABLE 16

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION EMPLOYMENT LEVELS FROM JANUARY 1972 THROUGH DECEMBER 1986

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	-0.40	±2.056	0.69	26	(-3.98,2.7)
Rail*	2.87	±2.056	0.0080	26	(1.36,8.3)
Pipe*	0.81	±2.056	0.043	26	(-1.72,4.0)
Urban Transit*	0.76	±2.056	0.45	26	(-1.45,3.15)

M_1 = national $\alpha = .05$ *Reject Ho
M_2 = industry $\alpha/2 = .025$

TABLE 17

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION EMPLOYMENT LEVELS FROM JANUARY 1972 THROUGH DECEMBER 1979

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	-0.08	±2.145	0.93	14	(-5.1,4.7)
Rail*	0.75	±2.145	0.46	14	(-1.84,3.8)
Pipe*	-1.90	±2.145	0.078	14	(-4.21,0.25)
Urban Transit*	1.59	±2.145	0.13	14	(-0.7,4.96)

M_1 = national $\alpha = .05$ *Reject Ho
M_2 = industry $\alpha/2 = .025$

TABLE 18

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN EMPLOYMENT LEVELS OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION EMPLOYMENT LEVELS FROM JANUARY 1980 THROUGH DECEMBER 1986

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	-0.51	±2.228	0.62	10	(-6.8,4.2)
Rail*	3.28	±2.228	0.0083	10	(2.6,13.6)
Pipe*	1.20	±2.228	0.26	10	(-1.9,6.45)
Urban Transit*	-0.43	±2.228	0.67	10	(-5.2,3.5)

M_1 = national $\alpha = .05$ *Reject Ho

M_2 = industry $\alpha/2 = .025$

TABLE 19

AVERAGE HOURLY WAGE RATES IN SELECTED INDUSTRIES FROM 1972 THROUGH MARCH 1987

Year	Industry								
	National	Transp.	Trucking	Railroad	Pipe	Urban	Mfg.	Mining	Const.
1972	3.70	4.65	4.86	4.89	5.21	3.30	4.07	4.44	6.06
1973	3.94	5.02	5.27	5.40	5.53	3.51	4.35	4.75	6.41
1974	4.24	5.11	5.64	5.68	6.05	3.81	4.70	5.23	6.81
1975	4.53	5.88	6.00	6.05	6.89	4.15	5.15	5.95	7.31
1976	4.86	6.45	6.47	6.88	7.45	4.56	5.58	6.46	7.71
1977	5.25	6.99	7.10	7.39	8.14	5.07	6.06	6.94	8.10
1978	5.69	7.56	7.76	7.87	8.81	5.60	6.38	7.67	8.66
1979	6.16	8.16	8.34	8.94	9.52	5.95	7.13	8.49	9.27
1980	6.66	8.87	9.13	9.92	10.50	6.34	7.75	9.17	9.94
1981	7.25	9.70	9.90	10.65	11.50	6.74	8.54	10.04	10.82
1982	7.68	10.32	10.23	11.50	12.59	7.27	9.04	10.77	11.63
1983	8.02	10.79	10.61	12.84	14.06	7.43	9.38	11.27	11.92
1984	8.32	11.12	10.66	13.33	14.75	7.60	9.74	11.63	12.13
1985	8.57	11.40	10.70	13.64	15.26	7.69	10.10	11.98	12.31
1986	8.75	11.61	10.71	13.82	15.32	8.07	10.28	12.45	12.42
1987	8.89	11.77	10.72	14.13	15.36	8.10	10.38	12.48	12.55

TABLE 20

AVERAGE WEEKLY WAGE RATES IN SELECTED INDUSTRIES FROM 1972 THROUGH MARCH 1987

Year	Industry								
	National	Transp.	Trucking	Railroad	Pipe	Urban	Mfg.	Mining	Const.
1972	136.90	187.86	203.63	214.67	214.65	119.46	167.68	184.14	221.19
1973	145.39	203.31	220.29	240.30	228.94	124.96	180.53	201.40	235.89
1974	154.76	217.48	230.11	246.92	249.26	136.02	191.29	219.14	249.25
1975	163.53	233.48	241.20	261.97	280.42	148.11	205.49	249.31	266.08
1976	175.45	256.71	262.04	360.66	309.92	161.88	225.55	273.90	283.73
1977	189.00	278.90	287.55	321.47	340.25	177.45	248.46	301.20	295.68
1978	203.70	302.80	313.50	343.92	366.50	192.08	270.44	332.88	318.69
1979	219.91	325.58	331.10	392.47	400.79	207.06	290.90	365.07	342.99
1980	235.10	351.25	357.90	426.56	441.00	216.83	310.78	397.75	367.78
1981	255.20	382.18	387.09	457.95	491.05	231.18	343.31	439.75	399.26
1982	267.26	404.48	392.83	484.15	536.33	247.91	355.27	459.88	426.82
1983	280.70	420.81	400.40	541.85	586.30	251.54	381.77	478.98	442.97
1984	292.86	438.13	407.28	573.19	497.38	258.40	403.24	503.58	458.51
1985	299.06	450.30	405.41	597.00	628.71	262.23	416.12	519.93	464.09
1986	304.50	456.29	409.50	608.21	632.00	277.05	423.18	526.64	465.75
1987	306.61	459.03	411.03	645.71	622.70	268.11	431.81	528.78	470.63

TABLE 21

PERCENT CHANGE IN WAGE RATES (HOURLY) FROM JANUARY 1972 TO MARCH 1987 INCLUDING NATIONAL AVERAGES AND THE CPI

Year	CPI	National	Total Transp.	Trucking	Railroad	Pipe	Urban Transit	Mfg.	Mining	Const.
72-73	8.8	6.49	7.96	8.44	10.43	6.14	6.36	6.88	6.98	5.78
73-74	12.2	7.61	7.77	7.02	5.19	9.40	8.55	8.05	10.11	6.24
74-75	7.0	6.84	7.99	6.38	6.51	13.88	8.92	9.57	13.77	6.84
75-76	4.8	7.28	8.84	7.83	13.72	8.13	9.88	8.35	8.57	5.47
76-77	6.8	8.02	8.37	9.73	7.41	9.26	11.18	8.60	7.43	4.81
77-78	9.0	8.38	8.30	9.30	6.50	8.23	10.45	5.28	10.52	6.91
78-79	13.3	8.26	7.79	7.47	13.59	8.06	6.25	11.76	10.69	6.26
79-80	12.4	8.12	8.70	9.47	10.96	10.29	6.55	8.70	8.01	7.23
80-81	8.9	8.86	9.36	8.43	7.36	9.52	6.31	10.19	9.49	8.85
81-82	3.9	5.93	6.39	3.83	7.98	9.48	7.86	5.85	7.27	7.49
82-83	3.8	4.43	4.55	3.71	11.65	11.68	2.20	3.76	4.64	2.49
83-84	4.0	3.74	3.06	.47	3.82	4.91	2.29	3.84	3.19	1.76
84-85	3.8	3.00	2.56	.37	2.33	3.46	1.18	3.70	3.01	1.48
85-86	1.1	2.10	1.84	.09	1.32	.39	4.94	1.78	3.92	.90
86-87	0.4	1.60	1.38	.09	2.24	.26	.37	.97	.24	1.05

TABLE 22

**PERCENT CHANGE IN WAGE RATES (WEEKLY)
FROM JANUARY 1972 TO MARCH 1987
INCLUDING NATIONAL AVERAGES AND THE CPI**

Year	CPI	National	Total Transp.	Trucking	Railroad	Pipe	Urban Transit	Mfg.	Mining	Const.
72-73	8.8	6.20	8.22	8.18	11.94	6.66	4.60	7.66	6.48	6.65
73-74	12.2	6.44	6.97	4.46	4.00	8.86	8.85	5.96	8.81	5.66
74-75	7.0	5.67	7.36	4.82	4.82	12.50	8.84	7.42	13.77	6.75
75-76	4.8	7.29	9.95	8.64	14.77	10.52	9.30	9.76	9.86	6.63
76-77	6.8	7.72	8.64	9.76	6.92	9.79	9.62	10.16	9.97	4.20
77-78	9.0	7.78	8.57	9.02	6.98	7.71	8.24	8.86	10.52	7.79
78-79	13.3	7.96	7.52	5.61	14.12	9.37	7.80	7.57	9.67	7.62
79-80	12.4	6.91	7.88	8.16	8.69	10.03	4.72	6.83	8.77	7.23
80-81	8.9	8.55	8.81	8.36	7.36	11.35	6.62	10.47	10.56	8.56
81-82	3.9	4.73	5.83	1.48	5.72	9.22	7.24	3.48	4.58	6.90
82-83	3.8	5.03	4.04	1.93	11.92	9.31	1.46	7.46	4.15	3.78
83-84	4.0	4.33	4.16	1.72	5.78	1.89	2.73	5.62	5.14	3.51
84-85	3.8	2.12	2.78	-.45	4.15	5.24	1.48	3.19	3.25	1.22
85-86	1.1	1.82	1.33	1.01	1.88	.52	5.65	1.70	1.29	.35
86-87	0.4	.69	.60	.37	6.17	-1.47	-3.23	2.04	.40	1.05

TABLE 23

PERCENT CHANGES IN WAGE RATES (HOURLY) AVERAGES IN SELECTED INDUSTRIES FROM JANUARY 1972 THROUGH MARCH 1987

INDUSTRY	YEARS	AVERAGE % Δ
National	72-87	6.05
	72-79	7.6
	80-87	4.25
Transportation	72-87	6.32
	72-79	8.22
	80-87	4.16
Trucking	72-87	5.50
	72-79	8.21
	80-87	2.36
Rail	72-87	7.40
	72-79	9.29
	80-87	5.24
Pipe	72-87	7.54
	72-79	9.17
	80-87	5.67
Urban Transit	72-87	6.22
	72-79	8.52
	80-87	3.59
Manufacturing	72-87	6.49
	72-79	8.40
	80-87	4.30
Mining	72-87	7.19
	72-79	9.51
	80-87	4.54
Construction	72-87	4.90
	72-79	6.19
	80-87	3.40

TABLE 24

PERCENT CHANGES IN WAGE RATES (WEEKLY) AVERAGES IN SELECTED INDUSTRIES FROM JANUARY 1972 THROUGH MARCH 1987

INDUSTRY	YEARS	AVERAGE % Δ
National	72-87	5.55
	72-79	7.00
	80-87	3.90
Transportation	72-87	6.18
	72-79	8.14
	80-87	3.94
Trucking	72-87	4.87
	72-79	7.33
	80-87	2.06
Rail	72-87	7.89
	72-79	9.40
	80-87	6.14
Pipe	72-87	7.44
	72-79	9.43
	80-87	5.17
Urban Transit	72-87	5.60
	72-79	7.75
	80-87	3.14
Manufacturing	72-87	6.54
	72-79	8.03
	80-87	4.85
Mining	72-87	7.15
	72-79	9.73
	80-87	4.20
Construction	72-87	5.19
	72-79	6.57
	80-87	3.63

TABLE 25

AVERAGE HOURLY WAGE RATES IN SELECTED INDUSTRIES FROM 1972 THROUGH MARCH 1987 ADJUSTED TO 1980 REAL DOLLARS

Year	Industry								
	National	Transp.	Trucking	Railroad	Pipe	Urban	Mfg.	Mining	Const.
1972	7.52	9.45	9.88	9.94	10.59	6.71	8.27	9.02	12.31
1973	7.36	9.38	9.84	9.13	10.32	6.55	8.13	8.87	11.97
1974	7.06	9.01	9.39	9.95	10.07	6.35	7.82	8.71	11.33
1975	7.05	9.15	9.33	8.84	10.71	6.46	8.02	9.25	11.37
1976	7.21	9.57	9.60	10.21	11.05	6.76	8.27	9.59	11.48
1977	7.30	9.72	9.87	10.27	11.31	7.05	8.42	9.65	11.25
1978	7.26	9.65	9.89	10.08	11.23	7.14	8.14	9.78	11.04
1979	6.94	9.17	9.38	10.06	10.72	6.70	8.03	9.56	10.44
1980	6.66	8.87	9.13	9.92	10.50	6.34	7.75	9.17	9.94
1981	6.67	8.92	9.11	9.80	10.58	6.20	7.86	9.24	9.96
1982	6.80	9.14	9.06	10.19	11.15	6.44	8.01	9.54	10.30
1983	6.88	9.26	9.10	11.02	12.06	6.38	8.05	9.67	10.28
1984	6.89	9.21	8.83	11.04	12.22	6.30	8.07	9.64	10.05
1985	6.86	9.12	8.56	11.06	12.26	6.15	8.08	9.58	9.85
1986	6.88	9.22	8.42	10.87	12.05	6.35	8.08	9.79	9.77

TABLE 26

AVERAGE HOURLY WAGE RATES (ADJUSTED) FOR THE THREE SELECTED TIME PERIODS (INCLUDING THE PERCENT CHANGE BETWEEN THE REGULATION AND DEREGULATION PERIODS)

INDUSTRY	YEARS	AVERAGE	% CHANGE
National	1972-1986	7.03	
	1972-1979	7.21	5.60 decrease
	1980-1986	6.81	
Transportation	1972-1986	9.26	
	1972-1979	9.39	3.03 decrease
	1980-1986	9.11	
Trucking	1972-1986	9.28	
	1972-1979	9.63	7.70 decrease
	1980-1986	8.89	
Rail	1972-1986	10.13	
	1972-1979	9.75	8.23 decrease
	1980-1986	10.56	
Pipe	1972-1986	11.13	
	1972-1979	10.76	7.30 increase
	1980-1986	11.54	
Urban Transit	1972-1986	6.53	
	1972-1979	6.72	6.12 decrease
	1980-1986	6.31	
Manufacturing	1972-1986	8.01	
	1972-1979	8.14	1.90 decrease
	1980-1986	7.99	
Mining	1972-1986	9.40	
	1972-1979	9.30	2.35 increase
	1980-1986	9.52	
Construction	1972-1986	10.75	
	1972-1979	11.40	12.35 decrease
	1980-1986	10.02	

TABLE 27

AVERAGE WEEKLY WAGE RATES IN SELECTED INDUSTRIES FROM 1972 THROUGH 1986 ADJUSTED TO 1980 REAL DOLLARS

Year	Industry								
	National	Transp.	Trucking	Railroad	Pipe	Urban	Mfg.	Mining	Const.
1972	278.21	381.77	413.80	436.25	436.21	242.77	340.96	384.37	449.50
1973	271.57	379.76	411.47	448.85	427.63	233.41	337.21	376.19	440.61
1974	257.63	362.05	383.07	416.05	414.95	226.44	318.45	364.80	414.94
1975	254.39	363.21	375.22	407.53	436.23	230.42	309.66	387.83	413.92
1976	260.41	381.01	388.93	446.25	459.99	240.27	334.76	406.53	421.12
1977	262.73	387.70	399.73	447.43	472.99	246.68	945.39	418.70	410.99
1978	259.72	386.06	399.72	438.50	467.29	244.90	344.81	424.43	406.33
1979	247.35	366.21	372.42	441.44	450.80	232.90	327.20	410.62	485.79
1980	235.10	351.25	357.90	426.56	441.00	216.83	310.78	397.75	367.78
1981	234.86	351.73	352.24	421.46	451.92	212.76	315.95	404.70	367.44
1982	236.78	358.35	398.03	428.94	475.17	219.64	314.75	407.43	378.14
1983	240.85	361.07	343.58	464.93	503.07	215.83	327.58	410.98	380.08
1984	242.67	363.05	337.49	474.97	495.01	214.12	334.14	417.28	379.93
1985	239.66	360.21	324.30	477.56	502.93	209.77	332.87	415.91	371.24
1986	241.86	362.43	325.26	483.09	501.99	220.05	336.13	418.30	369.94

TABLE 28

AVERAGE HOURLY WAGE RATES (ADJUSTED) FOR THE THREE SELECTED TIME PERIODS (INCLUDING THE PERCENT CHANGE BETWEEN THE REGULATION AND DEREGULATION PERIODS)

INDUSTRY	YEARS	AVERAGE	% CHANGE
National	1972-1986	250.92	
	1972-1979	261.50	8.67 decrease
	1980-1986	238.83	
Transportation	1972-1986	367.72	
	1972-1979	375.97	4.70 decrease
	1980-1986	358.30	
Trucking	1972-1986	367.91	
	1972-1979	391.23	12.77 decrease
	1980-1986	341.25	
Rail	1972-1986	443.99	
	1972-1979	435.29	4.28 increase
	1980-1986	453.93	
Pipe	1972-1986	462.48	
	1972-1979	445.76	8.04 increase
	1980-1986	481.58	
Urban Transit	1972-1986	227.12	
	1972-1979	237.23	9.13 decrease
	1980-1986	215.57	
Manufacturing	1972-1986	329.36	
	1972-1979	333.53	2.48 decrease
	1980-1986	324.60	
Mining	1972-1986	401.85	
	1972-1979	394.43	4.03 increase
	1980-1986	410.36	
Construction	1972-1986	397.18	
	1972-1979	417.90	10.62 decrease
	1980-1986	373.51	

TABLE 29

AVERAGE HOURLY WORK WEEK IN SELECTED INDUSTRIES FROM JANUARY 1972 THROUGH MARCH 1987

Year	Industry								
	National	Transp.	Trucking	Railroad	Pipe	Urban	Mfg.	Mining	Const.
1972	37.0	40.4	41.9	43.9	41.2	36.2	41.2	42.6	36.5
1973	36.9	40.5	41.8	44.5	41.4	35.6	41.5	42.4	36.8
1974	36.5	40.2	40.8	44.0	41.2	35.7	40.7	41.9	36.6
1975	36.1	39.7	40.2	43.3	40.7	35.7	39.9	41.9	36.4
1976	36.1	39.8	40.5	43.7	41.6	35.5	40.6	42.4	36.8
1977	36.0	39.9	40.5	43.5	41.8	35.0	41.0	43.4	36.5
1978	35.8	40.0	40.5	43.7	41.6	34.3	41.1	43.4	36.8
1979	35.7	39.9	39.7	43.9	42.1	34.8	40.8	43.0	37.0
1980	35.3	39.6	39.2	43.0	42.0	34.2	40.1	43.3	37.0
1981	35.2	39.4	39.1	43.0	42.7	34.3	40.2	43.7	36.9
1982	39.8	39.0	38.4	42.1	42.6	34.1	39.3	42.7	36.7
1983	35.0	39.0	38.5	42.2	41.7	33.9	40.7	42.5	37.2
1984	35.2	39.4	38.9	43.0	40.5	34.0	41.4	43.3	37.8
1985	34.9	39.5	38.5	43.6	41.2	34.1	41.2	43.4	37.7
1986	34.8	39.0	38.2	43.9	41.8	34.3	41.4	42.3	37.3
1987	34.5	38.9	38.2	45.4	40.5	33.7	41.4	42.8	37.4

TABLE 30

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1972 THROUGH MARCH 1987

	NATIONAL							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.949	90.1	1.443	.1324	-3.214	1.212	1.42	10.90
Rail	.635	40.3	1.044	.3528	1.086	3.231	10.43	2.96
Pipe	.736	59.2	1.165	.2968	0.500	2.717	7.38	3.92
Urban Transit	.792	62.7	1.114	.2381	-0.523	2.180	4.75	4.68
Total Transit	.976	95.2	1.125	.0703	-.476	.643	0.41	16.00
Manufacturing	.891	79.4	1.164	.1646	-0.550	1.507	2.27	7.07
Mining	.853	72.8	1.258	.2131	-0.413	1.951	3.81	5.90
Construction	.906	82.2	.983	.1270	-1.035	1.162	1.35	7.74

TABLE 31

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1972 THROUGH DECEMBER 1979

	NATIONAL							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.484	23.4	.8539	.631	1.694	1.163	1.35	1.35
Rail	.008	0.0	–	–	–	3.607	13.01	–
Pipe	–.660	0.4	–.214	1.324	10.810	2.440	5.95	–.16
Urban Transit	.185	3.4	.518	1.121	4.570	2.066	4.27	.46
Total Transit	.178	3.2	.103	.233	7.424	.431	.18	.44
Manufacturing	.091	0.8	2.460	1.102	0.526	2.031	4.13	.22
Mining	–.019	0.0	–	–	–	2.107	5.79	–.50
Construction	.192	3.7	.223	.467	4.486	0.861	.74	.48

TABLE 32

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1980 THROUGH MARCH 1987

			NATIONAL					
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.960	92.1	1.198	.1568	-2.649	.961	.92	7.64
Rail	.659	43.4	.882	.4504	1.569	3.154	9.95	1.96
Pipe	.789	62.2	1.275	.4440	.366	3.110	9.67	2.87
Urban Transit	.711	50.6	.697	.3086	.688	2.161	4.67	2.26
Total Transit	.995	99.0	1.137	.0520	-.653	.318	.102	21.85
Manufacturing	.984	96.8	1.194	.0971	-.762	.595	.355	12.30
Mining	.940	88.4	1.138	.1839	-.283	1.127	1.27	3.19
Construction	.942	88.7	1.242	.1988	-1.834	1.218	1.48	6.25

TABLE 33

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1972 THROUGH MARCH 1987

	NATIONAL							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.874	76.3	1.305	.2014	-2.375	1.827	3.34	6.48
Rail	.513	26.3	.814	.3782	3.163	3.431	11.77	2.15
Pipe	.809	65.4	1.376	.2779	-.206	2.521	6.35	4.95
Urban Transit	.728	54.4	1.118	.2836	-.605	2.513	6.62	3.94
Total Transit	.946	89.5	1.136	.1077	-.131	.977	0.96	10.55
Manufacturing	.911	83.0	1.072	.1346	.602	1.221	1.49	7.96
Mining	.860	74.0	1.371	.2254	-.458	2.045	4.18	6.08
Construction	.877	76.9	.967	.1468	-.172	1.332	1.77	6.59

TABLE 34

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1972 THROUGH DECEMBER 1979

	NATIONAL							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.501	25.1	1.231	.8686	-1.280	1.915	3.67	1.42
Rail	.397	15.7	1.964	1.8550	-4.710	4.090	16.73	1.06
Pipe	-.234	5.5	-.498	.8454	12.920	1.864	3.48	-.54
Urban Transit	.248	6.2	.593	.9447	.600	2.083	4.34	.63
Total Transit	.416	17.3	.468	.4173	4.863	.920	.84	1.12
Manufacturing	.475	22.5	.659	.4989	3.339	1.100	1.21	1.32
Mining	-.117	1.4	-2.884	.9961	11.750	2.197	4.83	-2.40
Construction	.061	0.4	.085	.5699	5.966	1.257	1.58	.15

TABLE 35

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1980 THROUGH MARCH 1987

	NATIONAL							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.887	78.6	.977	.2279	-1.747	1.469	2.16	4.24
Rail	.492	24.2	.577	.4573	3.889	2.948	8.69	1.26
Pipe	.841	70.8	1.589	.4565	-1.025	2.943	8.66	3.48
Urban Transit	.613	37.6	.858	.4951	-.209	3.191	10.18	1.73
Total Transit	.968	93.9	1.026	.1188	-.061	.765	.58	8.64
Manufacturing	.926	85.8	1.126	.2051	.463	1.322	1.75	5.49
Mining	.963	92.8	1.207	.1508	-.505	.972	.94	8.00
Construction	.918	84.2	1.086	.2104	-.605	1.356	1.84	5.16

TABLE 36

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1972 THROUGH MARCH 1987

	CPI							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	.782	61.2	.7219	.1594	.687	2.404	5.78	4.53
Rail	.519	26.9	.5181	.2369	3.940	3.574	12.77	2.19
Pipe	.552	30.5	.5303	.2219	3.997	3.348	11.21	2.39
Urban Transit	.495	24.5	.4209	.2047	3.408	3.088	9.54	2.06
Total Transit	.770	59.3	.5392	.1238	2.722	1.867	3.49	4.36
Manufacturing	.808	65.3	.6409	.1295	2.205	1.954	3.82	4.95
Mining	.725	52.6	.6490	.1708	2.854	2.576	6.64	3.80
Construction	.729	53.1	.4794	.1250	1.701	1.885	3.56	3.84
National	.838	70.3	.5089	.0917	2.645	1.384	1.92	5.55

TABLE 37

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1972 THROUGH DECEMBER 1979

	CPI							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	-.031	0.1	-.0125	.1633	8.321	1.328	1.76	-.08
Rail	.027	0.1	.0289	.4433	9.020	3.606	13.00	.07
Pipe	-.100	1.0	-.0738	.2991	9.859	2.433	5.92	-.03
Urban Transit	-.676	45.6	-.4277	.1906	12.489	1.550	2.40	-2.24
Total Transit	-.466	21.7	-.0615	.0477	8.786	.387	.150	-1.29
Manufacturing	.297	8.8	.1827	.2394	6.702	1.947	3.79	.08
Mining	.050	0.3	.0363	.2957	9.172	2.405	5.78	.12
Construction	.505	25.2	.1335	.0931	4.592	0.757	.574	1.43
National	.450	20.2	.1019	.0826	6.678	.672	.452	1.23

TABLE 38

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1980 THROUGH MARCH 1987

	CPI							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.870	75.7	.994	.2518	-1.252	1.686	2.84	3.95
Rail	.503	25.3	.704	.5413	2.636	3.625	13.14	1.30
Pipe	.693	48.0	1.171	.5448	1.339	3.648	13.31	2.15
Urban Transit	.463	21.4	.474	.4064	1.840	2.721	7.40	1.17
Total Transit	.901	81.1	.942	.2032	.677	1.360	1.85	4.64
Manufacturing	.968	93.6	1.075	.1255	.320	.840	.70	8.57
Mining	.836	70.0	.926	.2714	1.110	1.818	3.30	3.41
Construction	.787	62.0	.951	.3330	-0.088	2.230	4.97	2.86
National	.934	87.2	.850	.1455	1.099	.974	.94	5.85

TABLE 39

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1972 THROUGH MARCH 1987

	CPI							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.637	40.6	.5719	.1920	1.044	2.896	8.38	2.98
Rail	.326	10.6	.3112	.2505	5.630	3.778	14.28	1.24
Pipe	.621	38.5	.6356	.2227	3.188	3.359	11.28	2.85
Urban Transit	.533	28.4	.4852	.2139	2.357	3.226	10.41	2.27
Total Transit	.710	50.4	.5129	.1411	2.751	2.129	4.53	3.63
Manufacturing	.558	31.1	.3950	.1629	3.914	2.457	6.03	2.42
Mining	.706	49.8	.6763	.1883	2.630	2.840	8.07	3.59
Construction	.748	56.0	.4959	.1220	1.881	1.841	3.38	.46
National	.783	61.3	.4708	.1038	2.405	1.566	2.451	4.54

TABLE 40

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1972 THROUGH DECEMBER 1979

	CPI							
Industry	**r**	**R^2**	**coeff.**	**Coeff. Std. Dev.**	**const.**	**s**	**MS**	**t-act**
Trucking	-.448	20.1	-.2987	.2432	16.105	1.978	3.91	-1.23
Rail	-.079	0.6	-.1057	.5461	10.012	4.442	19.73	-.19
Pipe	-.288	8.3	-.1663	.2258	10.974	1.836	3.37	-.74
Urban Transit	-.440	19.3	-.2849	.2375	40.399	1.932	3.71	-1.20
Total Transit	-.717	51.3	-.2184	.6868	10.168	.706	.50	-2.52
Manufacturing	-.693	48.0	-.2609	.1108	10.373	.901	.81	-2.35
Mining	-.340	11.5	.2264	.2558	11.833	2.080	4.32	-.88
Construction	.337	11.3	.1276	.1458	5.381	1.186	1.40	.88
National	.115	1.3	.0311	.1100	6.707	.894	.80	.28

TABLE 41

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1980 THROUGH MARCH 1987

	CPI							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.853	72.8	.904	.2476	-1.289	1.658	2.75	3.65
Rail	.345	11.9	.340	.4745	4.695	3.177	16.10	.82
Pipe	.814	66.3	1.481	.4719	-.312	3.160	9.98	3.14
Urban Transit	.545	29.7	.734	.5057	.416	3.386	11.46	1.45
Total Transit	.950	90.3	.969	.1420	.349	.950	.90	6.83
Manufacturing	.890	79.3	1.042	.2382	.995	1.595	2.54	4.38
Mining	.988	97.5	1.191	.0848	-.211	.567	.03	14.05
Construction	.843	71.0	.960	.2744	.073	1.857	3.37	3.50
National	.936	87.6	.901	.1516	.562	1.015	1.03	5.94

TABLE 42

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1972 TO MARCH 1987

	TRANSPORTATION							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.963	92.6	1.269	.0992	-2.514	1.047	1.10	12.79
Rail	.678	44.6	.967	.2910	1.282	3.070	9.44	3.32
Pipe	.755	57.0	1.035	.2495	5.382	2.635	6.94	4.15
Urban Transit	.818	66.9	.997	.1945	-.099	2.054	4.22	5.13

TABLE 43

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1972 TO DECEMBER 1979

	TRANSPORTATION							
Industry	R^2	trans. coeff.	national coeff.	const.	s	MS	trans. t-act	national t-act
Trucking	.544	29.6	1.649	4.039	-5.34	1.115	1.24	1.59
Rail	.357	12.7	2.937	3.140	-14.84	3.570	11.35	.94
Pipe	-.014	0.0	-	-	-	2.445	5.98	-.03
Urban Transit	.341	11.6	1.635	1.842	-4.92	1.976	3.91	.89

TABLE 44

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE CHANGE (HOURLY) FROM JANUARY 1980 TO MARCH 1987

	TRANSPORTATION							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.974	94.8	1.064	.1117	-2.000	.7825	.61	9.52
Rail	.659	43.4	.882	.4504	1.564	3.154	9.95	1.96
Pipe	.789	62.2	1.275	.4440	.366	3.110	9.67	2.87
Urban Transit	.711	50.6	.697	.3086	.688	2.161	4.67	2.26

TABLE 45

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1972 TO MARCH 1987

	TRANSPORTATION							
Industry	R^2	trans. coeff.	national coeff.	const.	s	MS	trans. t-act	national t-act
Trucking	.907	82.3	1.128	.1449	-2.102	1.579	2.49	7.78
Rail	.504	25.4	.666	.3168	3.566	5.452	11.92	2.10
Pipe	.821	67.4	1.163	.2246	.248	2.448	5.99	5.18
Urban Transit	.773	59.8	.975	.2218	-.426	2.417	5.84	4.40

TABLE 46

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1972 TO DECEMBER 1979

	TRANSPORTATION							
Industry	r	R^2	coeff.	Coeff. Std. Dev.	const.	s	MS	t-act
Trucking	.785	61.6	1.716	.553	-6.63	1.372	1.88	3.10
Rail	.546	29.9	2.406	1.505	-10.55	3.732	13.92	1.60
Pipe	-.056	0.3	-.106	.772	10.29	1.915	3.60	-0.14
Urban Transit	.175	3.0	.370	.854	4.73	2.118	4.49	0.43

TABLE 47

REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1980 TO MARCH 1987

	TRANSPORTATION							
Industry	R^2	trans. coeff.	national coeff.	const.	s	MS	trans. t-act	national t-act
Trucking	.841	70.7	.874	.2518	-1.381	1.720	2.96	3.47
Rail	.367	13.5	.406	.4611	4.540	3.149	9.92	.88
Pipe	.860	74.0	1.534	.4061	-.869	2.774	7.70	3.78
Urban Transit	.666	44.4	.880	.4409	-.330	3.012	9.07	2.00

TABLE 48

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATE (HOURLY) AND THE CPI FROM JANUARY 1972 TO MARCH 1987

	NATIONAL & CPI							
Industry	R^2	national coeff.	CPI coeff.	const.	s	MS	national t-act	CPI t-act
Trucking	89.1	1.497	-.032	-3.296	1.334	1.78	5.58	-1.20
Rail	40.3	1.110	-0.446	.985	3.361	11.30	1.64	-.11
Pipe	55.4	1.454	-.206	.127	2.791	7.78	2.59	-.61
Urban Transit	71.9	1.962	1.774	-.478	-1.313	3.85	4.49	-2.00
Total Transit	95.9	1.285	-.112	-.698	.614	.37	10.39	-1.50
Manufacturing	80.6	.941	.164	-.300	1.521	2.31	3.08	.89
Mining	72.8	1.217	.032	-.386	2.033	4.13	2.98	7.13
Construction	82.6	1.084	.070	-1.485	1.196	1.43	4.51	-.48

TABLE 49

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATE (WEEKLY) AND THE CPI FROM JANUARY 1972 TO MARCH 1987

		NATIONAL & CPI						
Industry	R^2	national coeff.	CPI coeff.	const.	s	MS	national t-act	CPI t-act
Trucking	77.2	1.445	.1053	-2.442	1.869	3.49	4.36	-.53
Rail	27.8	1.057	-.1864	3.061	3.535	12.50	1.69	-.49
Pipe	65.4	1.419	-.0324	-.224	2.622	6.87	3.05	-.12
Urban Transit	55.0	1.256	-.1060	-.663	2.662	7.08	2.66	-.37
Total Transit	89.8	1.212	-.0576	-.062	1.005	1.01	6.80	-.54
Manufacturing	89.3	1.443	-.2851	.445	1.006	1.01	8.09	-2.66
Mining	74.3	1.266	.0801	-.415	2.117	4.48	3.38	.36
Construction	77.9	.830	.1050	-.115	1.357	1.84	3.46	.07

TABLE 50

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATE (HOURLY) AND THE CPI FROM JANUARY 1972 TO DECEMBER 1979

	NATIONAL & CPI							
Industry	R^2	national coeff.	CPI coeff.	const.	s	MS	national t-act	CPI t-act
Trucking	31.1	1.102	-.125	.96	1.208	1.46	1.50	-.75
Rail	.1	-.024	.032	9.18	3.950	15.60	-.01	-.06
Pipe	1.1	-.085	-.065	10.43	2.665	7.10	-.05	-.18
Urban Transit	75.6	1.713	-.602	1.05	1.137	1.29	2.48	-3.85
Total Transit	40.6	.283	-.090	6.89	.369	.13	1.26	-1.77
Manufacturing	9.1	-.146	.198	7.68	2.130	4.53	-.11	.67
Mining	.5	-.168	.053	10.29	2.631	6.92	-.10	.15
Construction	25.7	-.052	.139	5.30	.828	.68	-.10	1.22

TABLE 51

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATE (WEEKLY) AND THE CPI FROM JANUARY 1972 TO DECEMBER 1979

	NATIONAL & CPI							
Industry	R^2	national coeff.	CPI coeff.	const.	s	MS	national t-act	CPI t-act
Trucking	51.0	1.376	-.342	.879	1.697	2.88	1.78	-1.63
Rail	17.3	2.036	-.169	-3.640	4.438	19.70	1.00	.31
Pipe	12.4	-.434	-.153	13.887	1.966	3.86	-.48	-.63
Urban Transit	28.5	.728	-.307	5.501	1.991	3.96	.80	-1.25
Total Transit	76.5	.568	-.236	6.357	.537	.28	2.32	-3.55
Manufacturing	96.7	1.113	-.387	5.839	.312	.09	7.80	-10.01
Mining	12.2	.195	-.220	13.143	2.271	5.15	-.19	-.78
Construction	11.4	.032	.127	5.165	1.299	1.68	.05	.79

TABLE 52

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATE (HOURLY) AND THE CPI FROM JANUARY 1980 TO MARCH 1987

	NATIONAL & CPI							
Industry	R^2	national coeff.	CPI coeff.	const.	s	MS	national t-act	CPI t-act
Trucking	92.9	1.457	-.245	-2.852	1.018	1.036	3.12	-.57
Rail	45.5	1.935	-.942	.510	3.461	11.98	1.22	-.65
Pipe	61.4	1.898	-.444	-.747	3.516	12.36	1.18	-.30
Urban Transit	69.6	2.187	-1.385	-.572	1.896	3.59	2.51	-1.75
Total Transit	99.7	1.384	-.236	-.848	.200	.04	15.02	-2.80
Manufacturing	98.6	.763	.426	-.518	.437	.19	3.79	2.33
Mining	89.3	1.497	-.348	-.536	1.212	1.46	2.69	-.69
Construction	95.7	2.155	-.882	-2.456	.839	.70	5.59	-2.51

TABLE 53

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATE (WEEKLY) AND THE CPI FROM JANUARY 1980 TO MARCH 1987

	NATIONAL & CPI							
Industry	**R^2**	**national coeff.**	**CPI coeff.**	**const.**	**s**	**MS**	**national t-act**	**CPI t-act**
Trucking	79.0	.784	.198	-1.730	1.626	2.64	1.10	.29
Rail	34.9	1.598	-1.050	3.796	3.054	9.33	1.19	-.81
Pipe	71.7	1.242	.362	-1.024	3.240	10.50	.87	.26
Urban Transit	38.2	1.161	-.311	-.237	3.549	12.60	.74	-.21
Total Transit	95.3	.672	.364	-.029	.740	.54	2.06	1.16
Manufacturing	86.2	.909	.223	.483	1.455	2.11	1.42	.36
Mining	98.7	.392	.838	-.432	.452	.20	1.97	4.36
Construction	84.4	1.231	-.149	-.619	1.506	2.27	1.85	-.23

TABLE 54

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATES, TOTAL TRANSPORTATION WAGE RATES (HOURLY), AND THE CPI FROM JANUARY 1972 TO MARCH 1987

	NATIONAL/TRANSPORTATION/CPI						
Industry	R^2	trans. coeff.	national coeff.	CPI coeff.	const.	s	MS
Trucking	92.6	1.231	-.084	.1054	-2.437	1.148	1.31
Rail	48.3	1.995	-1.453	.1789	2.377	3.269	10.68
Pipe	57.3	.917	.276	-.1040	.767	2.855	8.15
Urban Transit	72.8	.581	1.027	-.4131	-.908	2.015	4.06

TABLE 55

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATES, TOTAL TRANSPORTATION WAGE RATES (WEEKLY), AND THE CPI FROM JANUARY 1972 TO MARCH 1987

	NATIONAL/TRANSPORTATION/CPI						
Industry	R^2	trans. coeff.	national coeff.	CPI coeff.	const.	s	MS
Trucking	82.8	.925	.329	-.052	-2.292	1.694	2.87
Rail	27.9	.164	.858	-.177	3.088	3.689	13.61
Pipe	68.3	.759	.500	.011	-.100	2.621	6.87
Urban Transit	60.0	.883	.186	-.055	-.520	2.622	6.87

TABLE 56

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATES, TOTAL TRANSPORTATION WAGE RATES (HOURLY), AND THE CPI FROM JANUARY 1972 TO DECEMBER 1979

	NATIONAL/TRANSPORTATION/CPI						
Industry	**R^2**	**trans. coeff.**	**national coeff.**	**CPI coeff.**	**const.**	**s**	**MS**
Trucking	45.0	1.466	.687	.008	-9.14	1.027	1.46
Rail	23.2	5.143	-1.480	.496	-26.25	3.870	14.98
Pipe	1.5	-.476	.050	-.108	13.71	2.972	8.84
Urban Transit	83.2	-1.711	2.197	-.7568	12.85	1.056	1.11

TABLE 57

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATES, TOTAL TRANSPORTATION WAGE RATES (WEEKLY), AND THE CPI FROM JANUARY 1972 TO DECEMBER 1979

	NATIONAL/TRANSPORTATION/CPI						
Industry	**R^2**	**trans. coeff.**	**national coeff.**	**CPI coeff.**	**const.**	**s**	**MS**
Trucking	65.5	1.721	.398	.065	-10.06	1.592	2.53
Rail	51.9	5.348	-1.002	1.094	-37.64	3.784	14.32
Pipe	23.4	-1.309	.304	-.460	22.15	2.055	4.22
Urban Transit	64.6	-2.635	2.226	-.929	22.25	1.566	2.45

TABLE 58

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATES, TOTAL TRANSPORTATION WAGE RATES (HOURLY), AND THE CPI FROM JANUARY 1980 TO MARCH 1987

	NATIONAL/TRANSPORTATION/CPI						
Industry	**R^2**	**trans. coeff.**	**national coeff.**	**CPI coeff.**	**const.**	**s**	**MS**
Trucking	96.7	3.699	-3.663	.627	.268	.803	.64
Rail	50.2	5.083	-5.100	.256	4.799	3.816	14.58
Pipe	63.0	3.613	-3.100	.407	2.302	3.973	15.78
Urban Transit	70.4	-1.529	4.304	-1.745	-1.862	2.160	4.66

TABLE 59

MULTIPLE REGRESSION ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE PERCENT CHANGE IN THE NATIONAL WAGE RATES, TOTAL TRANSPORTATION WAGE RATES (HOURLY), AND THE CPI FROM JANUARY 1980 TO MARCH 1987

	NATIONAL/TRANSPORTATION/CPI						
Industry	**R^2**	**trans. coeff.**	**national coeff.**	**CPI coeff.**	**const.**	**s**	**MS**
Trucking	80.5	-.572	1.168	.406	-1.746	1.812	3.28
Rail	44.8	-1.608	2.679	-.464	3.750	3.248	10.55
Pipe	74.5	1.378	.316	-.140	-.984	3.550	12.61
Urban Transit	52.9	2.335	-.407	-1.162	-.169	3.578	12.81

TABLE 60

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1972 THROUGH MARCH 1987

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.46	±2.048	0.65	28	(-1.82,2.89)
Rail	-1.11	±2.048	0.27	28	(-3.85,1.1)
Pipe	-1.26	±2.048	0.22	28	(-3.92,0.9)
Urban Transit	-.15	±2.048	0.88	28	(-2.40,2.07)
Total Transit	-.29	±2.048	0.77	28	(-2.26,1.70)
Manufacturing	-.42	±2.048	0.67	28	(-2.57,1.69)
Mining	-1.02	±2.048	0.32	28	(-3.45,1.16)
Construction	-1.22	±2.048	0.23	28	(-0.77,3.05)

M_1 = national $\alpha = .05$

M_2 = industry $\alpha/2 = .025$

TABLE 61

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1972 THROUGH DECEMBER 1979

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	-1.16	±2.145	0.27	14	(-1.65,0.49)
Rail	-1.38	±2.145	0.19	14	(-4.25,0.9)
Pipe	-1.85	±2.145	0.086	14	(-3.35,0.25)
Urban Transit	-1.22	±2.145	0.24	14	(-2.46,0.68)
Total Transit	-2.07	±2.145	0.057	14	(-1.20,0.02)
Manufacturing	-1.09	±2.145	0.30	14	(-2.30,0.75)
Mining*	-2.28	±2.145	0.039	14	(-3.66,-0.11)
Construction*	-3.79	±2.145	0.020	14	(0.62,2.24)

M_1 = national $\alpha = .05$ *Reject Ho

M_2 = industry $\alpha/2 = .025$

TABLE 62

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1980 THROUGH MARCH 1987

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.08	±2.179	0.30	12	(-1.8,5.2)
Rail	-0.60	±2.179	0.56	12	(-5.0,2.9)
Pipe	-0.73	±2.179	0.48	12	(-6.0,3.0)
Urban Transit	0.38	±2.179	0.71	12	(-2.7,3.9)
Total Transit	0.05	±2.179	0.96	12	(-3.06,3.2)
Manufacturing	-0.04	±2.179	0.97	12	(-3.30,3.2)
Mining	-0.20	±2.179	0.84	12	(-3.54,2.9)
Construction	-0.51	±2.179	0.62	12	(-4.2,2.61)

M_1 = national $\alpha = .05$

M_2 = industry $\alpha/2 = .025$

TABLE 63

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1972 THROUGH MARCH 1987

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.61	±2.048	0.55	28	(-1.62,2.99)
Rail	-1.81	±2.048	0.08	28	(-4.54,0.28)
Pipe	-1.52	±2.048	0.14	28	(-4.42,0.6)
Urban Transit	-0.04	±2.048	0.97	28	(-2.38,2.28)
Total Transit	-0.64	±2.048	0.53	28	(-2.63,1.38)
Manufacturing	-1.04	±2.048	0.31	28	(-2.98,0.98)
Mining	-1.36	±2.048	0.19	28	(-4.01,0.8)
Construction	0.38	±2.048	0.71	28	(-1.55,2.26)

M_1 = national $\alpha = .05$

M_2 = industry $\alpha/2 = .025$

TABLE 64

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1972 THROUGH DECEMBER 1979

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	-0.43	±2.145	0.67	14	(-2.01,1.34)
Rail	-1.37	±2.145	0.19	14	(-5.23,1.2)
Pipe*	-3.51	±2.145	0.0035	14	(-3.92,6.95)
Urban Transit	-0.99	±2.145	0.34	14	(-2.39,0.88)
Total Transit*	-2.58	±2.145	0.022	14	(-2.09,-0.19)
Manufacturing	-1.89	±2.145	0.079	14	(-2.04,6.13)
Mining*	-3.50	±2.145	0.0035	14	(-4.41,1.06)
Construction	0.85	±2.145	0.41	14	(-.66,1.52)

M_1 = national $\alpha = .05$ Reject Ho

M_2 = industry $\alpha/2 = .025$

TABLE 65

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE NATIONAL WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1980 THROUGH MARCH 1987

	NATIONAL				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.24	±2.179	0.24	12	(-1.39,5.1)
Rail	-1.46	±2.179	0.17	12	(-5.59,1.1)
Pipe	-0.60	±2.179	0.56	12	(-5.90,3.4)
Urban Transit	0.44	±2.179	0.66	12	(-2.97,4.5)
Total Transit	-0.03	±2.179	0.98	12	(-3.20,3.1)
Manufacturing	-0.61	±2.179	0.55	12	(-4.37,2.5)
Mining	-0.19	±2.179	0.85	12	(-3.78,3.2)
Construction	0.18	±2.179	0.86	12	(-3.09,3.60)

M_1 = national $\alpha = .05$

M_2 = industry $\alpha/2 = .025$

TABLE 66

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1972 THROUGH MARCH 1987

	CPI				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.83	±2.048	0.24	27	(-1.39,5.1)
Rail	-0.49	±2.048	0.17	27	(-5.59,1.1)
Pipe	-0.60	±2.048	0.56	27	(-5.90,3.4)
Urban Transit	0.34	±2.048	0.66	27	(-2.97,4.5)
Total Transit	0.28	±2.048	0.98	27	(-3.20,3.1)
Manufacturing	0.15	±2.048	0.55	27	(-4.37,2.5)
Mining	-0.36	±2.048	0.85	27	(-3.78,3.2)
Construction	0.18	±2.048	0.86	27	(-3.09,3.60)
National	0.52	±2.048	0.61	28	(-1.9,3.13)

M_1 = national $\alpha = .05$

M_2 = industry $\alpha/2 = .025$

TABLE 67

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1972 THROUGH DECEMBER 1979

	CPI				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.92	±2.145	0.37	14	(-1.4,3.59)
Rail	0.00	±2.145	1.0	14	(-3.4,3.4)
Pipe	0.08	±2.145	0.93	14	(-2.8,3.01)
Urban Transit	0.60	±2.145	0.56	14	(-2.0,3.53)
Total Transit	0.98	±2.145	0.34	14	(-1.3,3.42)
Manufacturing	0.70	±2.145	0.50	14	(-1.8,3.63)
Mining	-0.17	±2.145	0.87	14	(-3.1,2.66)
Construction*	2.75	±2.145	0.016	14	(0.7,5.51)
National	1.49	±2.145	0.16	14	(-0.7,4.05)

M_1 = national $\alpha = .05$ *Reject Ho

M_2 = industry $\alpha/2 = .025$

TABLE 68

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1980 THROUGH MARCH 1987

	CPI				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.81	±2.179	0.43	12	(-2.1,4.7)
Rail	-0.87	±2.179	0.40	12	(-5.4,2.3)
Pipe	-0.97	±2.179	0.35	12	(-6.4,2.4)
Urban Transit	-0.07	±2.179	0.94	12	(-3.3,3.1)
Total Transit	-0.31	±2.179	0.76	12	(-3.7,2.8)
Manufacturing	-0.39	±2.179	0.70	12	(-4.0,2.8)
Mining	-0.54	±2.179	0.60	12	(-4.2,2.5)
Construction	0.17	±2.179	0.87	12	(-3.3,3.8)
National	-0.39	±2.179	0.70	12	(-3.6,2.50)

M_1 = national $\alpha = .05$

M_2 = industry $\alpha/2 = .025$

TABLE 69

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1972 THROUGH MARCH 1987

	CPI				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.30	±2.048	0.20	28	(-1.1,4.68)
Rail	-0.70	±2.048	0.49	28	(-4.0,1.95)
Pipe	-0.51	±2.048	0.62	28	(-3.8,2.3)
Urban Transit	0.77	±2.048	0.45	28	(-1.8,3.97)
Total Transit	0.39	±2.048	0.70	28	(-2.1,3.13)
Manufacturing	0.10	±2.048	0.92	28	(-2.5,2.74)
Mining	-0.32	±2.048	0.75	28	(-3.4,2.5)
Construction	1.19	±2.048	0.24	28	(-1.1,4.04)
National	0.93	±2.048	0.36	28	(-1.4,3.62)

M_1 = national $\alpha = .05$

M_2 = industry $\alpha/2 = .025$

TABLE 70

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1972 THROUGH DECEMBER 1979

	CPI				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.50	±2.145	0.16	14	(-0.8,4.76)
Rail	0.14	±2.145	0.89	14	(-3.6,4.2)
Pipe	-0.11	±2.145	0.91	14	(-2.8,2.55)
Urban Transit	1.19	±2.145	0.26	14	(-1.2,4.31)
Total Transit	1.01	±2.145	0.33	14	(-1.3,3.59)
Manufacturing	1.15	±2.145	0.27	14	(-1.2,3.83)
Mining	-0.34	±2.145	0.74	14	(-3.2,2.36)
Construction*	2.34	±2.145	0.035	14	(0.2,5.21)
National	2.03	±2.145	0.061	14	(-0.1,4.71)

M_1 = national $\alpha = .05$ *Reject Ho

M_2 = industry $\alpha/2 = .025$

TABLE 71

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED INDUSTRIES COMPARED WITH THE CPI PERCENT CHANGE FROM JANUARY 1980 THROUGH MARCH 1987

	CPI				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.69	±2.179	0.30	12	(-1.6,4.9)
Rail	-1.56	±2.179	0.14	12	(-5.8,1.0)
Pipe	-0.68	±2.179	0.51	12	(-6.1,3.2)
Urban Transit	0.33	±2.179	0.75	12	(-3.2,4.3)
Total Transit	-0.16	±2.179	0.88	12	(-3.5,3.0)
Manufacturing	-0.72	±2.179	0.48	12	(-4.6,2.3)
Mining	-0.31	±2.179	0.76	12	(-4.0,3.0)
Construction	0.05	±2.179	0.96	12	(-3.3,3.5)
National	-0.14	±2.179	0.89	12	(-3.3,2.93)

M_1 = national $\alpha = .05$

M_2 = industry $\alpha/2 = .025$

TABLE 72

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1972 THROUGH MARCH 1987

	TRANSPORTATION				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.68	2.048	0.50	28	(-1.66,3.28)
Rail	-0.85	2.048	0.40	28	(-3.68,1.5)
Pipe	-0.98	2.048	0.33	28	(-3.75,1.3)
Urban Transit	0.10	2.048	0.92	28	(-2.24,2.47)

M_1 = national $\alpha = .05$
M_2 = industry $\alpha/2 = .025$

TABLE 73

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (HOURLY) FROM JANUARY 1972 THROUGH DECEMBER 1979

	TRANSPORTATION				
INDUSTRY	T	t	P	DF	95% CI
Trucking	0.02	±2.285	0.98	28	(-0.97,0.99)
Rail	-0.90	±2.285	0.38	28	(-3.63,1.5)
Pipe	-1.18	±2.285	0.26	28	(-2.70,0.79)
Urban Transit	-0.43	±2.285	0.67	28	(-1.81,1.21)

M_1 = national $\alpha = .05$
M_2 = industry $\alpha/2 = .025$

TABLE 74

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (HOURLY) OF SELECTED INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE CHANGE (HOURLY) FROM JANUARY 1980 THROUGH MARCH 1987

	TRANSPORTATION				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.08	2.179	0.30	12	(-1.8,5.2)
Rail	-0.60	2.179	0.56	12	(-5.0,2.9)
Pipe	-0.73	2.179	0.48	12	(-6.0,3.0)
Urban Transit	0.38	2.179	0.71	12	(-2.7,3.9)

M_1 = national $\alpha = .05$
M_2 = industry $\alpha/2 = .025$

TABLE 75

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1972 THROUGH MARCH 1987

	TRANSPORTATION				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.09	±2.048	0.28	28	(-1.14,3.77)
Rail	-1.21	±2.048	0.24	28	(-4.06,1.05)
Pipe	-.96	±2.048	0.34	28	(-3.93,1.4)
Urban Transit	0.48	±2.048	0.64	28	(-1.90,3.06)

M_1 = national $\alpha = .05$
M_2 = industry $\alpha/2 = .025$

TABLE 76

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE CHANGE (WEEKLY) FROM JANUARY 1973 THROUGH DECEMBER 1979

	TRANSPORTATION				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.01	2.145	0.33	14	(-0.90,2.52)
Rail	-0.60	2.145	0.56	14	(-4.10,2.3)
Pipe	-1.82	2.145	0.90	14	(-2.81,0.23)
Urban Transit	0.50	2.145	0.63	14	(-1.28,2.06)

M_1 = national $\alpha = .05$
M_2 = industry $\alpha/2 = .025$

TABLE 77

TWO-SAMPLE t-test ANALYSIS OF THE PERCENT CHANGE IN WAGE RATES (WEEKLY) OF SELECTED TRANSPORTATION INDUSTRIES COMPARED WITH THE TOTAL TRANSPORTATION WAGE PERCENT CHANGE (WEEKLY) FROM JANUARY 1980 THROUGH MARCH 1987

	TRANSPORTATION				
INDUSTRY	T	t	P	DF	95% CI
Trucking	1.23	±2.179	0.24	12	(-1.4,5.2)
Rail	-1.40	±2.179	0.19	12	(-5.6,1.2)
Pipe	-0.57	±2.179	0.58	12	(-5.9,3.5)
Urban Transit	0.46	±2.179	0.66	12	(-3.0,4.6)

M_1 = national $\alpha = .05$
M_2 = industry $\alpha/2 = .025$

TABLE 78

UNION VS. NONUNION WAGES IN SELECTED INDUSTRIES

Year	Transportation		Manufacturing		Mining		Construction	
	Union	Nonunion	Union	Nonunion	Union	Nonunion	Union	Nonunion
1983	482	330	393	349	464	499	522	300
1984	490	351	399	355	500	489	541	304
1985	502	369	417	378	512	499	568	315
1986	520	369	432	390	513	509	590	327

TABLE 79

NONUNION WAGES AS A PERCENT OF UNION WEEKLY WAGES

Year	Transportation	Manufacturing	Mining	Construction
1983	68.5	88.8	107.5	57.5
1984	71.6	89.0	978.8	56.2
1985	73.5	90.6	97.5	55.5
1986	72.9	90.3	99.2	55.4

TABLE 80

PERCENTAGE OF UNION EMPLOYEES IN SELECTED INDUSTRIES

Year	Transportation	Manufacturing	Mining	Construction
1983	42.5	29.2	20.7	27.5
1984	37.3	27.5	17.7	23.5
1985	36.5	25.8	17.3	22.3
1986	34.3	25.0	17.5	22.0

LIST OF REFERENCES

1. Colye, John J., Bardi, Edward J., and Cavinato, Joseph L., Transportation, West Publishing, 1986.

2. U.S. General Accounting Office, Effects of Regulatory Reform on Unemployment in the Trucking Industry, Report GAO/CED-82-90, 1982.

3. Public Utilities Commission of the State of California, Proposed Report of Administrative Law Judge William Turkish, Case 10368, 1985.

4. Nancy L. Rose, Labor-Rent Sharing and Regulation: Evidence from the Trucking Industry, Sloan School of Management Working Paper #1838-86, March 1987.

5. Washington State Legislature—Washington State Senate Transportation Committee, Testimony of Chuck Mack, 26 February 1987.

6. U.S. Congress—U.S. Senate Transportation Surface Transportation Subcommittee, Committee on Commerce, Science, and Transportation, Statement of Norman A. Weintaub In Opposition to the Trucking Deregulation Act of 1985, 27 September 1985.

7. Robert C. Lieb, "The Changing Nature of Management/Labor Relations in Transportation," Transportation Journal, pp. 4-14, Spring 1984.

8. Craig Dunlap, "Impact of Truck Deregulation Weighed for South," The Journal of Commerce, p. 14c, 30 October 1986.

9. U.S. Congress—House of Representatives Subcommittee on Surface Transportation, Committee on Public Works and Transportation, Statement of Norman A. Weintaub—Oversight Hearings on the Motor Carrier Act of 1980, 6 November 1985.

10. Joint Council of Teamsters No. 28, Olympia Bulletin, p. 2, 17 February 1987.

11. Larry T. Adams, Changing Employment Patterns of Organized Labor, Monthly Labor Review, pp. 25-31, February 1985.

12. U.S. Department of Census—Bureau of Labor Statistics, Employment and Earnings Manual, p. 106, June 1987.

13. Devore, Jay L., Probability and Statistics for Engineering and the Sciences, Brooks/Cole, 1982.

14. Baumal, William J., and Blinder, Alan S., Economic Principles and Policy, Harcourt Brace Jovanovich, 1985.

BIBLIOGRAPHY

U.S. Department of Census—Bureau of Labor Statistics, Employment and Earnings Manuals, March 1972 to June 1987.

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